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AN

OUTLINE

OF THE

HISTORY & CURE OF FEVER,

ENDEMIC AND CONTAGIOUS;

MORE EXPRESSLY THE

CONTAGIOUS FEVERS OF JAILS, SHIPS, & HOSPITALS,

THE CONCENTRATED ENDEMIC, VULGARLY CALLED

THE YELLOW FEVER

OF THE

WEST INDIES.

TO WHICH IS ADDED,

AN EXPLANATION

OF THE

PRINCIPLES OF MILITARY DISCIPLINE & ECONOMY;

With a Scheme of

MEDICAL ARRANGEMENT FOR THE ARMY:

And

A REFUTATION OF THE STRICTURES MADE BY THE LATE DR CURRIE ON THAT PART OF THE WORK WHICH RELATES TO THE AFFUSION OF COLD WATER ON THE SURFACE.

By ROBERT JACKSON, M.D.

SECOND EDITION.

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1808.

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Walker Channing M.D.
March 18, 1856.

ADVERTISEMENT.

THE materials contained in the following pages are drawn from a wide field of experience. They are genuine: on that account they may be useful; I therefore put them before the Public at this time, accompanied by a refutation of the Strictures which were applied, by the late Dr Currie of Liverpool, to that part of the work which relates to the management of cold bathing. The Public has already passed opinion on the Outline; and, as it was generally a favourable one, I consider it to be a duty which

to the Public to state the points which have
oubted or controverted, fairly and fully; so
ose who are disposed to investigate may have
portunity of contrasting the different views,
dging, from correct evidence, which is the bet-
nded, viz. that of the Author of Medical Re-
or of the Author of this publication.

ROBERT JACKSON.

Edinburgh, 10th April 1808.

CONTENTS.

CHAPTER I.

P

A ſhort Hiſtory of the Origin and Progreſs of Contagious Fever, as it appeared in different Diviſions of the Britiſh Army, during part of the year 1793, the years 1794, 1795, and part of 1796, - - - - - - 1

CHAPTER II.

Remarks on the Local Aſpects of ſuch Situations, in St. Domingo, as are occupied by Britiſh Troops; with a Summary Hiſtory of the more General Forms of Diſeaſe, prevailing at different Poſts, and in different Diſtricts, - 49

CHAPTER III.

Remote Cauſes of Fever, - - - - - - 102

CHAPTER IV.

Sect. I. Caſes of Contagious Fever, - - - 112
—— II. Caſes of Endemic Fever, - - - 129

CHAPTER V.

Deſcription of Fever, - - - - - - - 157
Sect. I. Deſcription of Contagious Fever, as it appeared in the Britiſh Army, in England, Holland, and Ireland, during the years 1793, 1794, 1795, and part of 1796, 162
—— II. Deſcription of the Concentrated Endemic of Tropical Climates, vulgarly called Yellow Fever; more particularly, the Fever of St. Domingo, as it appeared among

Page.

British troops, in different districts of the Island, during the years 1796, 1797, and part of 1798, - - - 178

CHAPER VI.

Dissection, - - - - - - - - - - 207

CHAPTER VII.

Characteristics of Endemic and Contagious Fever, - 212

CHAPTER VIII.

Prognosis, or Signs of Favourable and Fatal Terminations, 227

CHAPTER IX.

Critical Days, - - - - - - - - 242

CHAPTER X.

Of the Proximate Cause,—the immediate or direct Action of the Cause of Fever, - - - - - - 244

CHAPTER XI.

Cure of Fever, - - - - - - - - 253
Sect. I. Cure of Contagious Fever, - - - 256
—— II. Cure of Endemic Fever, - - - 263
—— III. Remarks on Remedies Employed in the Cure of Fever, - - - - - - - - - 279
—— IV.—Remarks on Different Methods of Cure, - 290

CHAPTER XII.

Consequences of Fever, - - - - - - - 298
Sect. I. Appearances on Dissection, - - - 300
—— II. Relapse in Febrile Form, - - - 304
—— III. Diseased Viscera, - - - - 310
—— IV. Ulceration of the Intestines, or Dysentery, - 317

CHAPTER XIII.

Original local Modes of Action of the Cause of Fever, - 323
Sect. I. Diarrhœa or Dysentery, - - - 324
—— II. Cutaneous Eruption,—and Ulcers of the Legs, 328

Page.

CHAPTER XIV.

Prevention, - - - - - - - - - - 331

CHAPTER XV.

Convaleſcence, - - - - - - - - 336

PART II.

An Explanation of the Principles of Military Diſcipline, Military Economy; and a Scheme of Medical Arrangement for Armies, - - - - - - - - 339

Advertiſement, - - - - - - - - 341

CHAPTER I.

An Explanation of the Principles of Military Diſcipline, 343

Choice of Soldiers, - - - - - - - 349

Means of improving the Moral Qualities of a Soldier, and of inſpiring the Mind with Sentiments of Honour and Heroiſm, - - - - - - 353

The Means of improving the Active Powers of the Body, and of preſerving Health by Habits of Exerciſe, - - 360

Arrangement of Troops, - - - - - 363

CHAPTER II.

Military Economy, - - - - - - - 365

Diet, - - - - - - - - - - ib.

Dreſs, - - - - - - - - - - 369

Care of the Body, - - - - - - - 371

Means of preventing the introduction of Diſeaſes of Contagion into Regiments or Tranſport Ships, - - - 373

Active Service, - - - - - - - - 378

CHAPTER III.

Scheme of Medical Arrangement for Armies, - - 387

THE

HISTORY

AND

CURE OF FEVER.

CHAPTER I.

A ſhort Hiſtory of the Origin and Progreſs of Contagious Fever, as it appeared in different Diviſions of the Britiſh Army, during part of the year 1793, the years 1794, 1795, and part of 1796.

THE writer of the following pages joined the Third Regiment of Foot, or Buff, in quality of ſurgeon, in the month of November 1793. The Buff, embarked upwards of ſix weeks, was then lying at Spithead, in the daily expectation of ſailing for the Weſt Indies, on an expedition under command of Lieutenant-General Sir Charles Grey. This regiment, like many others, had received recruits, in the courſe of the ſummer, raiſed on the footing of independents; and, in a ſimilar manner with others, had ſuffered from fever previous to embarkation. The corps was originally deſigned, as has been obſerved, for the ſervice of the Weſt Indies; but Government having thought it expedient to form an armament

to invade, or to make a demonſtration of invading the coaſts of France, the deſtination was changed on the eve of ſailing.

It may not be improper to remark in this place, that the diſeaſe, from which the Buff had ſuffered during the ſummer, was nearly dormant at the time of embarkation: caſes of fever occurred occaſionally; but the diſeaſe could not be ſaid to prevail. Towards the end of December, when the greater number of the tranſports aſſembled at Cowes, in the Iſle of Wight, after a fruitleſs demonſtration of invading the coaſts of France, and a dangerous detention in the road of Guernſey, under boiſterous and ſtormy weather, its exiſtence was obvious;—its progreſs was even conſiderable. The Buff, the 19th, and 42d regiments, the brigade of Major-General Lord Cathcart, was ordered to proceed to Lymington in the month of January. The Buff, on this occaſion, left at Cowes fifteen men, in a condition not proper to be embarked with the regiment, eſpecially as no previous preparation had been made for the accommodation of ſick:—theſe were removed to the general hoſpital then forming at Southampton.

It was remarked above, that fever did not prevail, in regular form, or in a material degree, till towards the end of December; yet it deſerves to be known, that eruptions of the ſcabby or leprous kind, blotches, uſually called ſcorbutic, even ſpreading ulcers and ſores of the legs, with occaſional inſtances of diarrhœa, exiſted from the time of embark-

ation: the knowledge of this fact is important:—A contagious fever had been introduced into this, as into almoſt every corps in the ſervice, by means of recruits from independent companies; but it was now dormant, weakened, or changed in form, and continued ſo for a certain time; the ſeeds of it however ſtill exiſted; they were called into action, on board of ſhip, and they ſpeedily acquired force, producing a febrile diſeaſe genuine and concentrated;—the liſt of ſick in fact increaſed. During the months of January, February, and part of March, there were ſeldom fewer than ſeventy or eighty in the report; of theſe, ſore legs, eruptions and blotches formed a conſiderable portion; caſes of diarrhœa were not unfrequent; but the prevailing malady was fever in genuine form, and often concentrated in degree. In February, the regiment was diſembarked from the tranſports, and diſperſed in barns at the farms contiguous to Lymington; the cauſe thus became diffuſed; the diſeaſe was weakened, but it ſtill exiſted. In the latter end of March, the corps embarked for Jerſey, and arrived in two days at St. Helier, where it occupied the barracks lately poſſeſſed by the 63d regiment. The 63d had been ſickly:—the air of the barracks was by no means pure: diſeaſe, which was weakened in the Buff, but not extinguiſhed, now extended itſelf, and acquired force, till ſuch time as an encampment was formed at Fort Henry, near the ſea. This was in May: the weather was then warm and pleaſant; bathing was enjoined as a part

of regimen; perſonal cleanlineſs was attended to; exerciſes and amuſements were recommended, and duly practiſed. From the example of the light company, a ſpirit of activity was diffuſed over the battalion; the general appearance of the corps became healthy, and, in ſome degree, military:—At the end of ſix weeks, the period of leaving Jerſey, not a man was numbered in the liſt of ſick.

It will not be improper to note, curſorily, the correſponding ſtates of health in thoſe regiments nearly connected with the Buff, quartered in the ſame cantonments, or employed on the ſame ſervices. The Buff, the 19th, and 42d regiments, the brigade of Lord Cathcart, was removed, as has been obſerved from Cowes to Lymington in the month of January: the ſick liſt of the Buff then was numerous; that of the 19th was ſtill greater, amounting to at leaſt one third of the whole corps: in the 42d, a pattern of military and moral virtues, the proportion was comparatively ſmall. The form of the diſeaſe prevailing in the Buff has been noticed; that of the 19th was in general ſimilar, only the courſe was more tedious, relapſes more frequent, the termination in diarrhœa more common: in the 42d fever was a rare occurrence; when it did occur, marks of reaction were conſpicuous.

The 63d regiment had occupied the barracks at St. Helier during the winter; and like other corps, filled up from independents, had ſuffered from ſickneſs, and ſuſtained ſome loſs; yet the loſs was upon the whole ſmall, in proportion to the numbers at-

tacked. The 88th arrived from Ireland about the beginning of June: This was a new regiment, and like moſt other new regiments, was compoſed of heterogeneous and unſound materials. It was ſickly when it arrived, and ſickneſs raged during the time it remained in the iſland, with violence and devaſtation. Beſides this there were quartered in Jerſey, between ſeven and eight hundred recruits, belonging to different corps: theſe were under the care of two hoſpital mates: ſickneſs prevailed among them to a great degree, and mortality was great beyond meaſure.

Beſides the brigade of Lord Cathcart, three other brigades, conſiſting of the 27th, 28th, 54th, 57th, 59th, and 2d battalion of the 78th, were of the army under the command of Earl Moira. The greater number of theſe were quartered in the neighbourhood of Southampton, and moſt of them experienced a conſiderable degree of ſickneſs. The economy of the 27th was exact, the diſcipline ſevere, and the corps, upon the whole, was healthy: the 78th had been well recruited, and as yet had little communication with other corps: the reſt ſuffered ſeverely from fever; in ſome the mortality was great.

The diſeaſe, which prevailed among the troops under the command of Earl Moira, was a fever of a contagious kind, introduced into the army, as appears from undoubted teſtimony, by the recruits of the newly raiſed independent companies. It prevailed in different degrees of force among different

corps, and assumed different modes of action in the same corps, according to a variety of causes. In the Bush, the cause of the disease had a varied action: It seemed to occasion eruptions of a scabby or leprous kind at one time; sore legs or spreading ulcers on the extremities at another; diarrhœa or flux on many occasions:—fever, of different forms or of different degrees of force, was considered as the pure and genuine mode of operation.

The symptoms of the febrile form differed in force, as they differed in the mode of action: sometimes they were violent and threatening, particularly affecting the moving or muscular powers of the body with tremors, startings, and partial convulsions; accompanied, on some occasions, with great commotion of the vascular system, on others with a commotion very inconsiderable. This irritated action was general in the system at one time; at another it more especially affected particular organs; and that, either uniformly or alternately: hence affection of the chest, or of the organs of respiration, was sometimes a prominent and a constant feature of the disease; sometimes an uncertain one, ceasing and returning at intervals, or alternating with affection of the head: a grim and cloudy, or bloated aspect, was usually connected with the affection of the chest alluded to; and, though the form was usually a form of danger, yet, as in other cases where reaction is vigorous, the termination was often decided and final, the critical period seldom extending beyond the seventh day. At other times, the ac-

tion of the moving or muſcular powers was leſs diſturbed; but the commotion of the vaſcular ſyſtem was conſiderable; the pulſe was frequent, quick and irritated; the heat great, ſometimes intenſe and ardent;—a condition frequently terminating in expanſion of the arterial pulſations, and a change of heat into warmth, followed by perſpiration and criſis: on the contrary, where the pulſe was diſturbed, but defective in energy of ſtroke; where the heat was cauſtic and pungent, rather than great and ſtrong, the ſymptoms often ſubſided at a given period, but final criſis did not take place: the powers of life ſometimes, indeed, emerged in ſuch caſes, and the patient recovered ſlowly; yet a fatal termination was, upon the whole, oftener obſerved, within the ſpace of twenty-four, or thirty-ſix hours from the decided change, than even this imperfect recovery. The duration of this form of fever, where the cauſe acted by producing irregular, violent and irritated motions was uſually ſhort, the violence of the ſymptoms often ſubſiding on the third day, and life terminating on the fifth: on ſome occaſions alſo, where reaction was obſcure, and little commotion perceptible, the third, and even an earlier period, was fatal.

The above are the more violent, the more rapid, but the rarer forms; it happens, ſix times perhaps for once, that the ſymptoms are moderate, the actions of the vaſcular ſyſtem and of the moving powers little diſordered, the ſkin dry, often tender of the touch, with ſmall increaſe of thirſt, but with

depraved taſte, loſs of appetite, and want of reſt. From ſmall beginnings, theſe ſymptoms gradually increaſe to a given point: they uſually change about the ſeventh: ſometimes health returns at this period, by regular criſis; ſometimes the vital energies ſubſide, the pulſe gradually, as it were, enveloping itſelf, and retiring from the extremities and ſurface of the body; petechiæ make their appearance; an important organ, frequently the brain, becomes oppreſſed; life moves on heavily, and at laſt ſtops altogether. Sometimes, inſtead of the recovery alluded to, or the gradual ſubſiding into death, another train of ſymptoms commences at this time, and runs over another courſe; viz. a development of the vaſcular ſyſtem, a vigorous circulation in the extremities, with a free, energetic, and expanding action of the artery, a lively delirium not unlike mania: in ſuch caſes, criſis occurrs frequently on the fourteenth, or the diſeaſe, changing form, continues ſeven days longer;—ſometimes only five. In other caſes, the action of the fever is moderate, and more immediately confined to certain parts of the ſyſtem: thus a diarrhœa, or flux, with or without ſevere gripings and bloody evacuations, is often the leading ſymptom throughout. This form is of long continuance: it ſlowly exhauſts life; unleſs where the evacuations are ſuddenly ſuppreſſed by accident or deſign;—in ſuch caſe a fatal termination is ſometimes unuſually rapid.

It is a remark of ſome importance, that diſtinct and

final criſis is rare in this diſeaſe. Relapſe is frequent, and relapſe may always be expected to occur where the diſeaſe ſubſides without obvious marks of criſis, —ſweat, perſpiration, or ſome other ſenſible evacuation. The patient, in thoſe caſes, appears to emerge, and for ſix or eight days often appears to gain ſtrength; yet upon a narrow examination, the marks of a ſuſpended, rather than of a departed diſeaſe, preſent themſelves; fever recurs; it ceaſes, and recurs again, often for four or five different times; the ſymptoms, in relapſe, frequently differ materially from thoſe of the original diſeaſe:—diarrhœa is one of the common forms; and, where the event proves fatal, diarrhœa is the more common termination: where relapſe occurs, but does not occur in form of diarrhœa, irregular motions, flying pains, ſudden and unaccountable qualms, often haraſs the patient for a length of time.

The mortality of this diſeaſe is not great inherently; but it becomes great and alarming, by neglect in the commencement, or by the crouding of ſick into ill ventilated hoſpitals: the mortality appeared uniformly to be greater among men of large, than of middling ſize;—(the grenadiers thus ſuffered more remarkably than the men of the battalion): mortality was alſo greater in the general hoſpital at Southamptom, than in the hoſpitals of regiments. The Buff loſt one man, out of more than one hundred, treated in the hoſpital of the regiment, between the month of November 1793, and the latter end of July 1794, the period of leaving Jerſey:

of about thirty ſent to Southamptom, under the ſame diſeaſe, one third was reported to have died in the ſame time. The preciſe proportion of deaths, among the troops under the command of Earl Moira, as treated in general or regimental hoſpitals, is not in the knowledge of the author; he knows however with certainty, that the proportion of deaths was inferior in regimental hoſpitals, though deficient of many comforts, and not always well conducted, to what it was in the general hoſpital of Southampton, furniſhed, in an ample manner with comforts of all ſorts, attended by phyſicians of the regular ſchools, and ſuperintended by a man of experience and reputation. This remark is not made with the deſign of obliquely conveying a cenſure. The author conceives it to be a duty to ſtate a fact,—to trace an effect to a cauſe, that error, from a ſimilar ſource may in future be avoided. The properties of the houſe, employed for the purpoſes of an hoſpital at Southamptom, were alone ſufficient to counterbalance, nay more than counterbalance all the good that the medical art, in its higheſt perfection, could ever be ſuppoſed to effect. A diſeaſe, originally of moderate ſymptoms, became concentrated in force, and rapid in courſe in this hot-bed of contagion. The fact is ſimple, and will explain itſelf. A granary, or malt-houſe, ſtorey raiſed above ſtorey, low roofed and imperfectly ventilated, every niche of it occupied by a ſick man's cradle, could not well fail, under the beſt care and management, of becoming a ſource of peſtilence. Such it in fact

became; the mortality of the diſeaſe being aggravated beyond its natural character, and the virulence of the contagion extending to the nurſes and attendants, obviouſly from the properties of the houſe alone.

The Buff embarked at St. Helier, in Jerſey, in the latter end of July, and arrived at Bergen-op-zoom, after a paſſage of eight days; at this period there was not a man ſick. At Bergen-op-zoom gin was eaſily procured; intoxication was the conſequence, and the effects occaſioned inconvenience the day following, on the march to Roſendael, the place of encampment:—The feet of ſome men were bliſtered by the journey, and others ſuffered indiſpoſitions from the exceſſes of the preceding night.

The army was now retreating, and in expectation of being preſſed upon by the enemy. That encumbrances, under ſuch circumſtances, might be as few as poſſible, it had been judged proper, that thoſe ſoldiers, who by reaſon of indiſpoſition became incapable of continuing in the line of march with arms and accoutrements, ſhould be removed to general hoſpitals;—an order neceſſarily complied with, as regiments were not ſupplied with the means of tranſporting, in their own train, extra encumbrances. A regiment conſiſting of five hundred men, a regiment in ſome reſpects aukward and unexperienced, as entering upon its firſt campaign, could not be expected to remain many days without furniſhing recruits for an hoſpital. It happened ſo in fact;—the Buff, previous to moving from Roſendael, was

under the neceſſity of ſending thirteen men to the hoſpital at Rhenen, not one of them ill of formed diſeaſe, but for the time unfit to continue in the line of march, or perform the duties of ſoldiers. Parties, under a ſimilar predicament, were diſpatched to the ſame receptacle on the eve of every movement; by which means, about one hundred and ſixty of the Buff found themſelves in general hoſpitals before the middle of November, few of whom ſuffered from complaints, which rendered ſuch removal neceſſary, had the regiment been allowed, only very limited means of conveyance, in the event of changing ground.

The Britiſh army paſſed the Maeſe towards the end of September. Previous to this period, ſuch ſick men of the Buff as had been ſent to general hoſpitals, had been ſent there chiefly on account of accidents, feveriſh or dyſenteric indiſpoſitions, which rendered them incapable of performing a long march without aſſiſtance. But though ſickneſs had hitherto been accidental and ſporadic, on the day of arrival at the heath of Moek, a poſition on the right bank of the Maeſe, between ſixty and ſeventy men, fifteen of them belonging to the company of light infantry, were attacked with fever within the ſpace of twenty-four hours. The ſudden invaſion of this ſickneſs appeared extraordinary; and it is not yet known where to look for its cauſe.

The ſymptoms of the complaint were violent in the commencement; the headach attacked ſuddenly, and ſeverely diſtreſſed the patient; the eyes

were often hot, painful and turgid; the countenance flushed, cloudy and grim; the limbs ached grievously, similar to the achings in the cold stage of intermittents, or accompanied with sensations of gnawing or tearing, more particularly along the shoulders and arms; the skin was generally dry, tender of the touch, or did not bear pressure without pain; the heat was often ardent, and sometimes pungent; the pulse was insidious, sometimes agitated and irregular, sometimes apparently little disordered in point of time, but seldom energetic, elastic and expanding; the tongue was usually white and slimy; to which was often added nausea, and sometimes vomiting; thirst was irregular; rest was altogether wanting, or the sleep was disturbed by dreams; the state of the bowels was uncertain; costiveness prevailed, or a purging approached to dysentery; in many instances there were convulsive or spasmodic motions of the moving powers, tremors, startings, affection of the organs of respiration, alternating with affection of the head. This disease did not terminate in regular intermissions; but it was disposed to subside in three days, or in five,—it seldom extended to seven. It relapsed after a short interval; and these relapses recurred frequently. It often terminated finally in a form of dysentery, or in local disease of an organ.

In six or seven days after arrival at Moek, the Buff was ordered upon a detached service. Two thirds of the sick, mentioned above, not being as yet sufficiently recovered to undertake an active duty, were ordered to Nymegen, and from thence to the

great hoſpital at Rhenen. The corps remained on detachment at Nyſterick, Battenburg, or on duty at Graaf, for upwards of three weeks. It returned about the 20th of October, and encamped on the glacis of Nymegen. The accumulation of ſick and convaleſcent, during this period, amounted to no more than nine men;—none of them dangerouſly ill. —From the 20th of October till the evacuation of Nymegen, about the 7th of November, every perſon indiſpoſed, ſo as to be unfit for duty, was ſent to a general hoſpital.

The Britiſh troops having been withdrawn from Nymegen about the 7th of November, the Buff, with the other regiments of the brigade, 40th, 55th, 59th, and 79th, was ordered to encamp near Lint, on the right bank of the Waal. The poſition was ſecure at the time, and ſuppoſed to be fixed for the winter: the ſick of the regiment, with conſent of the commanding officer, inſtead of being removed to Rhenen, were received into a barn, formed into an hoſpital. It need ſcarcely be mentioned that the inconveniencies and even hardſhips of this encampment were great; the ground of encampment was plowed field, or meadow often covered with water; the rains were frequent during a great part of November; the tents or huts afforded only a very imperfect protection; ſtraw was often deficient, and the ground, at all times damp, was ſometimes an abſolute mire: the froſt began early in December; the cold was intenſely ſevere; and though ſome things were

furniſhed, ſome were ſtill wanting, neceſſary to comfort,—perhaps even neceſſary to health.

The ſickneſs, which had increaſed in the army with the progreſs of the ſeaſon, now ſpread rapidly in the Buff, as it did in the other regiments of the brigade. In the ſhort period of ſix weeks, one hundred and fifty patients entered the hoſpital of the regiment, under one or other of the forms of fever, though the ſtrength of the corps did not then exceed three hundred men. On the 31ſt of December, the Buff was ordered to leave the encampment;—the ſick of courſe were ſent to the general hoſpital:—they amounted in the whole to forty-five men, thirty of whom were in ſuch a ſtate of convaleſcence, as to walk to Arnheim on their legs,—a diſtance of eight or nine miles.

It will be proper to be noticed on this occaſion, as ſerving to give ſome idea of the real cauſes which increaſe or diminiſh mortality, that the houſe occupied as an hoſpital by the Buff was no other than a barn, in which it was not poſſible to have a fire, or even ſtove; that the cold was intenſely ſevere; and that the ſoldiers were not in general well clothed; that ſome of them were deſtitute of blankets, and that the corps had not any extra bedding for the hoſpital preſent:—Other regiments were in a ſimilar ſituation, ſome perhaps better, others worſe.

The diſeaſe, which afflicted the Buff in this encampment, was the contagious fever which had prevailed in the Britiſh army, from an early period of the war, varied in form according to more general

or more accidental cauſes. In ſome the attack was ſudden; the headach violent, particularly the pain of the forehead and eyes; the aſpect of the eye was diſturbed, and the countenance was often dark and cloudy; the ſkin was generally dry, ſometimes purpliſh: the heat was great, or rather ardent and cauſtic; pains were ſevere and irregular, ſometimes proceeding, as it were in exploſions along the ſhoulders and arms; the joints ached, ſimilar to the achings in the cold ſtage of an intermittent; the ſurface of the ſkin was frequently ſore, or tender of the touch; the action of the vaſcular ſyſtem was irregular, ſometimes active and irritated, ſometimes torpid or unenergetic; the tongue was white and ſlimy, exhibiting, on ſome occaſions, a leaden aſpect; the thirſt was variable; nauſea was not uncommon; but vomiting was rare, unleſs about the period, when the fever ſubſided, or changed its mode of action, on which occaſion, there were ſome inſtances of a vomiting ſevere and irreſtrainable; tremors, ſtartings, convulſive and ſpaſmodic motions appeared frequently; affection of the cheſt alternated with affection of the head; want of reſt was a common occurrence, or ſleep was diſturbed by dreams and wanderings approaching to delirium. Theſe ſymptoms, which were violent in the commencement, continued violent, or increaſed to the third day,—often to the fifth, and ſometimes to the ſeventh. About theſe ſeveral periods the diſeaſe manifeſted a diſpoſition to ſubſide; decided criſis was not common, but recovery ſeemed

to go on for a few days, when relapſe occurring ſuddenly, with ſimilar or different ſymptoms, ran over a courſe, for the moſt part, of ſimilar duration.

In other forms, the pulſe differed little from natural in point of time; but it was deficient in energy and expanſion; the heat appeared moderate, when the arm was touched ſuperficially, when cloſely preſſed it appeared cauſtic, or imparted an upleaſant ſenſation; the ſkin was uſually dry, ſometimes flaccid and withered, in ſome caſes, greaſy and duſky, and generally tender of the touch; aching of the limbs was diſtreſſing; the headach was, for the moſt part, moderate; the diſorder in the head gave a ſenſation of confuſion, or, as the patients expreſſed it, a ſenſation of mazineſs rather than of pain; the tongue was clean, moiſt, and differing little from the natural appearance, on moſt occaſions in the commencement of the diſeaſe, ſometimes it was ſmooth and pale, ſometimes covered with a roughneſs, firmly adhering to it, but of very little thickneſs; in the more advanced ſtages the tongue was often covered with a black cruſt, or ſooty pellicle, ſometimes it was ſmooth. dry, parched, and ſhining or gloſſy;—the reſpiration was ſeldom much diſturbed. This form rarely changed before the ſeventh; at this period it ſometimes terminated finally, ſometimes it only changed form, and ran over another courſe of ſimilar duration, with conſiderable excitement of the vaſcular ſyſtem, ſometimes with lively delirium, or a ſpecies of mania.

Of this diſeaſe there was another form, where

diarrhœa or purging was the leading ſymptom, ſometimes with moderate, ſometimes with ſevere pains or gripings; the tongue, in thoſe caſes was frequently clean, or but very little changed from the natural appearance;—the common marks of fever were obſcure yet the diſeaſe followed the regular febrile periods; if purging was by any means ſuppreſſed, fever became conſpicuous; purging reproduced, fever diſappeared or abated. This ſpecies of diarrhœa ceaſed and recurred repeatedly, in a manner ſimilar to fever in genuine form; the gripings were ſometimes ſevere, the pains ſpaſmodic and periodical; at other times, the pains were moderate, but the uneaſineſs was conſtant.

The above fever in all its forms, though often alarming in its appearances, was not by any means a diſeaſe of inherent mortality:—Out of one hundred and fifty patients, admitted into the regimental hoſpital, during a period of ſix weeks, only one man died;—one was removed to the general hoſpital, at Arnheim, in very unpromiſing circumſtances.

On the 1ſt of January 1795, the Buff marched from the encampment, at Lint, the ſick, as has been obſerved, having been previouſly removed to the hoſpitals at Arnheim, or to houſes, allotted to that purpoſe, in the neighbourhood. The threatening movements of the enemy kept every part of the army alert; the Buff marched and countermarched between the Waal and the Rhine day after day, during the firſt part of January: the ſickneſs did

not much abate; for from the firſt to the 20th of the month, not fewer than forty men were conveyed to hoſpitals, the circumſtances of the ſervice not permitting them to be tranſported in the train of the regiment. From the 20th of January, or period of arrival at Deventer, liberty was given to preſs waggons, and to tranſport, in the train of the corps or brigade, ſick and other encumbrances; in conſequence of this arrangement, the Buff reſumed the plan of keeping the ſick with itſelf. The weather during this retreat was often exceſſively cold, and ſometimes wet; the marches were frequently protracted till late at night, and a barn was the general place of accommodation,—furniſhed however, for the moſt part, with a ſufficient proviſion of ſtraw. From Deventer to Bremen, or from the 29th of January to the beginning of April, the Buff ſent not a man to the general hoſpitals; on the contrary having picked up, on different occaſions, ſick men of the corps travelling with the hoſpital waggons, the number to be tranſported was ſeldom under thirty during the firſt ſix weeks—often above it. During this period one man died; a man, who had been ill for three days at out-poſt, before he was attended to: in the beginning of April, when the corps paſſed through Bremen, on its way to Bremenlehe, two men only were unable to continue the march on their own legs.

The above ſketch comprehends a ſummary of the medical hiſtory of the Buff, or third regiment of foot, during the ſervice of that corps on the conti-

nent, between the months of Auguſt 1794 and April 1795; a period memorable for ſickneſs, and ſtill more memorable for mortality among Britiſh troops.

The medical hiſtory of the retreat of the Britiſh troops, through Holland, furniſhes ſome facts deſerving the notice of the ſtateſman and general, as well as of the phyſician. The contagious fever, introduced into the army, as formerly obſerved, in the beginning of the war, by improper modes of recruiting, by want of attention and care in incorporating recruits, rendered virulent by accumulation in general hoſpitals, propagated and widely diffuſed by defects of diſcipline and arrangement, prevailed almoſt univerſally among the infantry, and in a degree nearly equal to what has been noticed in the Buff—it was little known among the cavalry. The Netherlands, the ſcene of the campaign under view, is a level country, abounding in water; the endemic diſeaſe is an intermitting or remitting fever, a diſeaſe common with the inhabitants at certain ſeaſons of the year, and from which ſtrangers ſeldom eſcape; yet, intermitting fever of genuine form was rarely ſeen during this campaign; it was not known in the Buff, and, as far as the author could learn, was ſeldom ſeen in other corps; yet it deſerves to be remarked, that the prevailing diſeaſe had naturally a diſpoſition to ſubſide at a given period, and to return again after a certain interval; but it poſſeſſed no other mark of the intermittent.

It may not be improper to obſerve in this place, though the information relative to the ſubject is not

ſufficiently exact, that four regiments of infanty arrived in the Scheldt late in Auguſt, and remained for ſome time in Zealand; of theſe the 80th and 88th, imported with them a contagious fever,—one of the others,—the 79th, was healthy at the period of arrival; but it ſoon ſuffered from attacks of intermittent, the endemic of the country. It joined the rear of the army in November, and encamped, near Lint, with the brigade of which the Buff formed a part: its ſick liſt was then ſmall, compared with that of other corps; it conſiſted chiefly of relapſes of intermittent, or of bowel complaints the conſequence of intermittent: theſe ceaſed in the courſe of December, contagious fever then began to make its appearance, increaſed during the months of January, February, March, and April, and even committed conſiderable ravages the following ſummer, after the regiment returned to England. The principal mortality in the 80th, and 88th,—and it was exceedingly great, is known to be owing to contagious fever; but whether an intermittent alſo prevailed in theſe corps, as in the 79th, during the ſojourn in Zealand, and to what extent it prevailed, is not within the knowledge of the author.

The author, being removed from the Buff, and appointed to do duty in the general hoſpital, was, in a few days after arrival at Bremen, ordered to Bremenlehe, to arrange the embarkation of the ſick and convaleſcent of the infantry, then under orders to be withdrawn from the continent. A fleet

of ſhips had arrived from England for the purpoſe of tranſport; but it was found upon examination, that tonnage was deficient for the removal of the ſick, and other encumbrances of the army; yet this was not diſcovered, till the ſick had been ordered from the hoſpital at Bremen, even till ſome of them had actually arrived at Bremenlehe. Four ſhips only were allotted to the tranſport of ſick,—not much ſhort at that time of one thouſand men. Under this deficiency, it was judged moſt proper to embark thoſe only, who were in a certain ſtate of convaleſcence, the others being removed to villages in the neighbourhood, to remain under the care of the officers of the hoſpital, till a proviſion could be made for them. The men embarked were actually convaleſcent at the time of embarkation; but as convaleſcence from hoſpital fever is liable to many accidents of relapſe, and as the veſſels were, in various ways, crouded beyond the calculation, ſickneſs appeared in almoſt every ſhip during the paſſage; and even ſome men died.

The number of ſick, remaining, after the embarkation of the convaleſcent, exceeded ſix hundred. Theſe men, the gleanings of the hoſpitals of the continent, exhibited a melancholy picture of the miſeries of war,—or rather of bad arrangement. Accomodation was now provided for them, in the beſt manner circumſtances permitted, at three different villages within a circle of ten miles from Bremenlehe: Of theſe Dorum was the largeſt, the laſt occupied, and the one at which the writer was ſtationed; it

received its full proportion of miſerable objects: the barns and houſes of this village were as good as could be expected; clean ſtraw and good proviſions were ſupplied in abundance; but the ordinary clothing of the ſoldier was bad, and bedding was altogether wanting. With difficulty fifty blankets were procured; theſe afforded only an imperfect relief to two hundred and twenty men, the half of whom, at leaſt, were covered with rags, incruſted with dirt, and over-run with vermine, emaciated, to the laſt degree of emaciation, by dyſentery, or rather by fever in dyſenteric form; the degree of weakneſs in many was extreme, ſome were ſpeechleſs and inſenſible, others delirious, and two or three maniacal, but advancing, as is commonly obſerved to be the caſe, in the recovery of health: the miſery was great, and the means of relief were inadequate;—ſuch as exiſted were diligently employed. It was uniformly the firſt object, in the preſent circumſtances, to remove the infected rags, to cut off the hair, to waſh the body clean, and to lay the patient, who often became, as it were, a new man by this operation alone, in clean ſtraw, covered, where it could be procured, with a clean blanket. The waſhing of the body and changing of the ſtraw was a daily operation; the perſons employed in it, as well as thoſe employed in waſhing the ſhirts and blankets, notwithſtanding the uſe of many precautions, were every one of them attacked with fever; yet notwithſtanding this uncommon contagion, the virulence of the diſeaſe was found to be diminiſhed,

in leſs than three weeks, though relapſes ſtill frequently occurred. In the courſe of one month, the whole of thoſe who eſcaped the grave, returned to Bremenlehe, in a certain ſtate of convaleſcence, in order to be embarked for England:—Of the two hundred and twenty collected at Dorum, near thirty died.

The deſcription of ſick, allotted to Dorum, conſiſted chiefly of ſubjects in the latter ſtages of diſeaſe; recent fever of courſe was rare; but the contagion being of uncommon force, extended itſelf to the nurſes, attendants and waſherwomen, by which an opportunity was furniſhed of obſerving ſome inſtances of the action of a febrile cauſe, in its higheſt ſtate of concentration. In thoſe inſtances of recent diſeaſe, the attack was ſudden; ſudden giddineſs, vertigo, even ſtupor like deep intoxication or apoplexy gave the firſt notice of approach; the pain of the head was frequently intenſe, particularly the pain of the forehead; pain and burning of the eyes, or a full ſtaring idiot-like appearance was common; the countenance was agitated, grim and cloudy, or lurid, leaden, and inanimate; the pulſe agitated, irregular, quick and frequent; or frequent, oppreſſed and ſmall; the heat ardent and cauſtic; the ſkin dry, or clammy and diſagreeable, without material increaſe of heat; ſtricture, heavy breathing and affection of the cheſt alternated with delirium or affection of the head; the tongue was ſlimy, white and foul,—ſeldom dry,—ſometimes covered with ſaliva, foul and leaden coloured. Under the ap-

pearances of oppreſſion or ſtupor, reſembling intoxication or apoplexy, death took place in thirty-ſix hours or leſs; in other forms, particularly where there were obvious marks of fever and ſome degree of excitement, the ſymptoms often ſubſided on the third day; but the aſpect remaining clouded and threatening, the diſeaſe returned again on the ſixth or earlier, and brought life into danger. If the febrile ſymptoms continued to the ſeventh day, progreſſively advancing, the termination was often final; at leaſt a train of ſymptoms of a different caſt took place, which after another ſeptenary period frequently terminated in complete or perfect criſis; ſometimes only changed form, and ran over another courſe with uncertain event.

The Britiſh cavalry remained on the continent, cantoned in the neighbourhood of Bremen, for ſome months after the infantry was withdrawn. During the retreat, this part of the army had been little ſubject to ſickneſs; and even at the beginning of September, when the author returned to England, no acute diſeaſe was yet known. This fact, contraſted with the deplorable ſtate of the infantry, is ſingular, and furniſhes an important remark to ſtateſmen and generals. The cavalry was not filled up by the recruits of independent companies; and the acquiſition of rank was here leſs a matter of traffic than of qualification and ſervice: the principles of diſcipline were conſequently better underſtood, and economy was more ſtrictly attended to.

In ſumming up this ſketch of the medical hiſtory

of the Britiſh army, on the continent, it is proper to remark, that it was a common practice, from the beginning of the war, to collect the ſick into general hoſpitals:—from the commencement of the retreat, orders to this effect were expreſs. The great hoſpital was formed at Rhenen behind the Rhine; there was alſo an hoſpital at Gorcum on the Maeſe; a number of ſick were kept on board of ſhips at Schevingdaal near Dordrecht; temporary or flying hoſpitals were formed at Nymegen on the Waal, at Arnheim on the Rhine, and occaſionally at other places contiguous to the rear of the army: nay further, bilanders, employed for the tranſport of ſick to the different depôts, were converted into hoſpitals on many occaſions. When the right bank of the Rhine was finally abandoned, the ſick of the army became ſcattered, in many different towns, on the route to Embden and Bremen. A conſiderable embarkation of ſick took place at Embden early in the ſeaſon; the remainder, as has been obſerved, left Bremenlehe in May.

The exact proportion of mortality, in the different hoſpitals on the continent, is not known to the author; it is preſumed, it cannot be aſcertained with perfect accuracy by any one. An officer of rank, who was curious in his inquiries on this ſubject, reports it to have been three in five; and, from the ſmall number of the Buff who rejoined the corps from hoſpitals, there is cauſe to believe that his calculation is not overrated. But be this as it may, the muſter roll of the army will ſhow that it was prodigiouſly great; and, as far as has come to the know-

ledge of the author, it was uniformly greater in general hoſpitals, than where corps were left to their own medical reſources.

The infantry of the Britiſh army having been withdrawn from the continent in the month of May 1795, the attention of Government ſeems to have been directed to a conqueſt of the French iſlands in the Weſt Indies. With this view two expeditions were formed of great magnitude, and apparently of ſome promiſe of ſucceſs. Lieutenant-General Sir Ralph Abercrombie was appointed commander in chief, and accompanied in perſon, the one directed againſt the Charibean Iſlands, ſaid to conſiſt of near fifteen thouſand men,—the èlite of the Britiſh army; the other, deſtined for St. Domingo, aſſembled at the Cove of Cork, and was chiefly compoſed of drafts from newly raiſed regiments, ſerving in Ireland. Major-General John Whyte was employed to collect and conduct it to the Weſt Indies:—The author occupied a ſituation on the medical ſtaff.

The expedition, or reinforcement for St. Domingo, conſiſted of the 17th, 32d, 39th, 56th, 67th, 93d, and 99th regiments of infantry, the 13th, 14th, 17th, 18th, 21ſt, 29th, and part of the 26th regiments of cavalry; in all amounting to near nine thouſand men. The old regiments being much reduced in ſtrength, ſome of them indeed being actually without ſoldiers, it had been judged proper by Government to fill them up by the drafting of new corps. Of theſe new corps, the majority had been raiſed in manufacturing towns, compoſed, as might be expect-

ed, of men radically ill calculated for ſoldiers, unſound in health, diſſolute in morals, aggrieved and diſcontented on various accounts. Mutiny actually took place at Cork in the month of September; its attendants were, as uſual, drunkenneſs and irregularity, its conſequences broken ſpirit and deſpondence: Deſertion prevailed, and ſtill greater deſertion was apprehended; to prevent which, as much as poſſible, an encampment was formed on the Iſland of Spike, —an unſheltered iſland in the harbour of Cove.

The author arrived at this encampment about the middle of October: the weather was then wet, boiſterous and ſtormy; the tents, pitched on this expoſed iſland, were frequently thrown down by the wind; the ſoldiers were thus almoſt daily drenched in rain, while the bare wet ground, or rotten ſtraw was their bed. In this ſituation they remained till about the middle of November, when tranſports arriving from England, the healthy part was immediately embarked. It was propoſed to the General commanding, that a ſhip for ſick, or rather a ſhip for convaleſcents, ſhould be allotted to each regiment of infantry; but the deficiency of tonnage did not admit of an accommodation ſo deſirable; an order was however given, that no men ſhould be embarked with the companies to which they belonged, who either were ill at the time, or who had been ill of fever or flux ſince arrival on the iſland; but the order was not duly attended to:—A motive of humanity, a deſire of removing the ſuffering ſoldier from a bleak, wet

and unſheltered encampment, was, perhaps, the chief cauſe of the inattention.

The ſeeds of a contagious diſeaſe were known to exiſt among the troops aſſembled on Spike Iſland; there was even reaſon to believe, that the ſeeds of this diſeaſe were carried on board of ſhip at the time of embarkation; and as no perſon, in the leaſt acquainted with the medical hiſtory of the preſent war, could be unconcerned at the conſequences, an order was given, that no time ſhould be loſt in removing from the tranſports to the hoſpital on ſhore, or to the hoſpital ſhips in harbour, all perſons, without exception, who diſcovered ſymptoms of fever. This order, however important, was executed with little punctuality;—ſometimes perhaps from inattention, oftener from boiſterous and ſtormy weather, which did not permit a boat to put to ſea with ſafety; but from whatever cauſe the neglect might proceed, the effect was the ſame; two thirds of the ſhips, in which the infantry was embarked, ſoon became infected: ſickneſs prevailed to conſiderable extent in the fleet, and even ſome men died, on board of tranſports, before there was an opportunity of removing them to the hoſpital on ſhore: this was particularly the caſe in the months of January and February.—Thus, from the badneſs of the weather, preventing the removal of the ſick, many of the tranſports actually became hoſpital ſhips; while from the extraordinary accummulation in the hoſpitals on the iſland, the diſeaſe was aggravated to an unnatural degree of virulence.

The troops, deſtined for St. Domingo, had been expected to ſail early in October; but the ſhips for tranſport did not arrive till about the middle of November. A part of the troops, as has been obſerved, had been for ſome time encamped on Spike Iſland, and had ſuffered conſiderable inconvenience and hardſhip from bad weather, and the ennui of confinement. The author arrived about the middle of October, and proceeded to make ſome inquiries reſpecting the ſtate of health. In obvious appearance there was not much febrile diſeaſe, twelve men only being ill of that complaint, about double the number of dirrahœa, generally ſlight in degree, but of a kind which indicated latent ſeeds of miſchief; the number of ſores and ſpreading ulcers on the legs, little ſhort of four hundred, appeared extraordinary and unaccountable: Men with ſore legs, according to a general regulation, are rejected from the ſervice of the Weſt Indies; but it was thought proper to make an experiment with a few of the above. About thirty ſores, ſlight in degree, and in ſubjects who, in other reſpects, had the appearance of being good ſoldiers, were put on board of a veſſel, prepared on purpoſe, and treated with care according to the ordinary rules of ſurgery: At the end of three weeks, no progreſs was obſerved; on the contrary ſlight ſores had degenerated into ſpreading ulcers.

The weather, as has been obſerved, was wet, boiſterous and ſtormy, th e condition of the troops, encamped on the iſland, uncomfortable: ſo that from the middle of October, the ſickneſs increaſed daily;

diarrhœa and dyſentery, or a dyſenteric form of fever was the chief complaint: in the 17th and 93d regiments, fever, in genuine form, was more frequent than among the other corps. The 17th occupied a ſmall houſe as an hoſpital; in this hoſpital diarrhœa or dyſentery changed frequently, and often ſuddenly into fever: the ſick of the other regiments were under tents till towards the end of October, when ſome ſmall veſſels were prepared for their reception; on board of theſe veſſels, the diſeaſe underwent the ſame changes, as in the hoſpital of the 17th regiment of foot.

The whole of the infantry embarked about the middle of November, after which ſickneſs ſeemed to be, in a manner, ſuſpended for the firſt fortnight, or threew eeks; diarrhœa and dyſentery ceaſed or became leſs frequent; ſuch attacks of illneſs as did occur, during that period, were chiefly febrile: towards the end of December genuine fever was frequent; by the middle of January it was ſo general, that every place that could be procured on Spike Iſland was filled with ſick; and before the 23d of February, the day of the final ſailing of the expedition, one half of all the regiments of infantry, except the 67th and perhaps the 93d, either were or had been, during this detention, numbered among the ſick. The 67th, previous to embarkation, had not fewer than ſeventy men ill, chiefly of diarrhœa, or ſlighter forms of dyſentery; but theſe diſappeared in a ſhort time, and fevers occurred ſo accidentally and rarely, that the ſick liſt of that

corps ſeldom exceeded ten or twelve men. The 93d regiment brought with it to Spike Iſland a fever in genuine form, and ſuffered the greateſt mortality of any, while it remained encamped: After embarkation the ſickneſs did not increaſe—perhaps it abated upon the whole. The 106th, drafted into the 56th, arrived in good health: ſickneſs ſoon made its appearance, and it increaſed ſo rapidly, that the 56th was conſidered as one of the moſt unhealthy. The 17th, 32d, 39th, and 99th, ſuffered in a great, and nearly in an equal proportion: ſome ſhips of the 39th and 99th particularly, were ſtruck, as it were, with a ſudden blaſt of peſtilence, twenty or even thirty men ſometimes ſickening in one night.—Such was the general ſtate of diſeaſe among the infantry.

The greater number of the regiments of cavalry were ſtrangers to ſickneſs, at leaſt experienced little mortality. The 13th, 14th, and 17th, ſcarcely ſent a man to the hoſpitals, or had a man ſick in their reports; the ſick liſt of the 18th was conſiderable; but few or none died; the 21ſt was not healthy when it arrived at Cove; the ſickneſs increaſed during detention, at that place, and on arrival at Barbadoes was not inferior to that of any corps of infantry; the 29th brought with it to Cove a fever of a ſuſpicious character; it was baniſhed from one of the tranſports, but it gained ground in the other; the ſame diſeaſe was found among the detachment of the 26th; but it did not become general.

The fleet, with the troops embarked, detained by contrary winds from the middle of November, ſailed on the 9th of February; but it ſailed, in a ſtate with reſpect to health, not well prepared. The tempeſtuouſneſs of the weather, which had all along prevented the ſick from being regularly removed on ſhore in the commencement of the illneſs, occaſioned an accumulation in many of the ſhips at the time the order was given for ſailing. The order for ſailing was ſudden, and circumſtances not permitting the removal intended, the ſick were conſequently carried to ſea. The wind becoming foul, ſoon after getting clear of the harbour, a great part of the fleet returned, others bore away for England, ſome made for the neareſt ports of Ireland, and ſeveral of the larger veſſels, perſiſting in their cruiſe, reached the Weſt Indies:—among the latter were the Indoſtan and Abergavenny, Indiamen. The ſickneſs increaſed on the paſſage in moſt of them, and the mortality was great, particularly in the Indoſtan. Of the tranſports which returned to the harbour, ſome returned with a ſickneſs aggravated in an uncommon degree: Of theſe the ſhip Flora, in which was embarked part of the 99th regiment with the commanding officer of the corps, was literally an hoſpital ſhip. This veſſel was cleared out and cleaned; the men in the mean time encamped on Hawl Bowling Iſland, were new clothed, and re-embarked on the eve of ſailing. The diſeaſe appeared to be weakened by this proceſs, but it ſtill exiſted: a conſiderable number ſickened during the paſſage, and

four men died, beſides the commanding officer. The other ſhips were immediately cleared of their ſick, on their return to the harbour; and the fleet ſailed finally on the 23d of February, with better arrangement, and more preparation for a voyage.

The paſſage to the Weſt Indies was a ſhort one; the wind was generally fair, the weather fine; and, unleſs in a few ſhips, the ſickneſs did not ſpread with any rapidity of progreſs, or occaſion much mortality. Upon the whole, the total loſs was leſs in the great body of the fleet, which arrived at Barbadoes on the 1ſt of April, than in thoſe few ſhips which purſued their courſe from the firſt departure, and arrived about a fortnight earlier.

The fleet, which ſailed from the Cove of Cork on the 23d of February, anchored at Barbadoes on the 1ſt of April. A fever ſtill prevailed; it was ſtill of the ſame kind, but it, in ſome meaſure, loſt the power of propagation. The diviſion of troops, deſtined for St. Domingo, ſailed from Barbadoes on the 19th of April, and arrived at the Mole on the 1ſt of May. Between five and ſix hundred men were on this occaſion embarked from hoſpitals, under the name of convaleſcents: among theſe, relapſe was frequent; ſometimes in form of fever, oftener diarrhœa or dyſentery: the duration of relapſe was generally ſhort, and the power of propagating to nurſes and attendants was viſibly weakened.—During the paſſage ſix men died. After arrival at the Mole, relapſe continued frequent through the greater part of May, but the contagion of the diſ-

eaſe ſeemed to be ſpent: the relapſe was often in form of an irregular remitting fever, of ſhort, but uncertain duration; the ſymptoms were ſometimes of an unpleaſant aſpect, with agitation and tremor of the moving powers;—diarrhœa or dyſentery, with ſevere gripings, and often with copious evacuations, was common.

The ſickneſs, which prevailed among the troops collected in Ireland, for the ſervice of St. Domingo, was uncommonly great, and the mortality was conſiderable. From the middle of October to the middle of February, not fewer than five hundered men were numbered with the dead; during which period, not fewer than three thouſand had been muſtered on the liſt of ſick. The cauſes of this ſickneſs and mortality are obvious, and ſimilar to the cauſes which produced ſuch ravages on the continent, viz. the ſeeds of infection, incautiouſly introduced into the army by the recruits of independent companies, or of new levies raiſed on the footing of independents, called into activity by a variety of cauſes, concentrated and exalted into a degree of peſtilential virulence, by accumulation in narrow ſpace.

It is proper to be known in this place, that no proviſion of hoſpitals had been made for the ſick of the troops collecting in Ireland, for the expedition of St. Domingo; nay, that the iſland on which theſe troops were encamped, and to which it was reſolved they ſhould be confined, could not furniſh the means of covering the infirm from the inclemencies

of weather. Towards the end of October, four ſmall veſſels were fitted up for the reception of the ſick of the worſt deſcription; but as theſe veſſels were not capable of receiving more than one hundred and twenty men, a great number were ſtill under the neceſſity of remaining on ſhore, under tents,—on wet ground and in ſtormy weather. Further, by this relief, inadequate as it was, ſoon was curtailed, two of the veſſels becoming infected, and unfit for the purpoſes of an hoſpital. The Iſland of Spike, the place of encampment, is an unſheltered iſland, on which there is a fort of Government. The barracks of this fort had been applied for early; and they were actually given up, in the month of November, for the accommodation of the ſick; but all the apartments belonging to them, which could be allotted to this purpoſe, were not capable of containing, in a proper manner, more than one hundred and forty men: the ſick, who required ſeparation from their comrades, amounted early in December to four hundred,—latterly they much exceeded this number. Beſides the accommodation of the fort, an hoſpital ſhip, capable of receiving about one hundred men, arrived from England in the month of November; but it was abſolutely neceſſary that the greater part of this veſſel be reſerved for the reception of ſick during the paſſage to the Weſt Indies. Under thoſe confined circumſtances, a tranſport ſhip and two ſmall brigs were allowed to receive convaleſcents from the hoſpitals on ſhore, with the view that theſe

convaleſcents might undergo a purification, and acquire ſome degree of ſtrength previous to their return to their reſpective regiments.

With theſe means of accommodation, deficient in a prodigious degree, the buſineſs was dragged on to the middle of January: from this period the ſickneſs increaſed ſo faſt, and ſo far outran the caſualty of the hoſpital, that a neceſſity aroſe of fitting up every hovel, barn or ſtable in the iſland for the reception of ſick: ſome ſheds were alſo conſtructed; and, by the middle of February, the accommodation, though not of a good kind, was adequate in extent: the delay of theſe meaſures is imputed to the daily expectation of ſailing.

The ſtate of health on board of the different tranſports deſerves a remark;—for it did not ſeem to be always connected with the actual cleanlineſs or ſize of the veſſel. The Indiamen were among the moſt ſickly of the tranſports; yet ſpace was there ample,—every thing was clean, and apparently in good order. In ſome of the ſmaller and confined ſhips, where no praiſe of cleanlineſs was due, health ſuffered little. There were alſo a few tranſports, in which were embarked detachments of unhealthy regiments, which experienced no ſickneſs during the whole period of embarkation; a fact only to be explained, by ſuppoſing that the ſeeds of contagion, either by accident, or by a more than ordinary attention in ſeparating the unſound from the ſound, had not been received on board. On the ſame cauſe perhaps depends the explanation of a

fact frequently obſerved in the tranſporting of troops; viz. that foreign ſoldiers generally arrive in the Weſt Indies in good health, though the perſons of the men are rarely clean, and the ſhips are for the moſt part abominably dirty. The Germans, it muſt be obſerved, are well recruited with reſpect to health; and they ſeem, on what cauſe it may depend, is uncertain, to have leſs diſpoſition in their habits to generate contagion, when confined in narrow ſpace, than Engliſh ſoldiers. German ſoldiers are chiefly recruited from among the peaſantry of the country, Engliſh ſoldiers from among the manufacturers of large towns,—from a claſs of men ſpending their lives in ſedentary occupations, in impure air. Under ſedentary occupations and in impure air, health is not only deficient in vigour, but the habit ſeems to fall into a diſpoſition to generate contagion;—a diſpoſition, which perhaps, more readily recurs at future periods, when ſimilar cauſes ariſe.

Of the different regiments of infantry, aſſembled at Cove, the 67th, as obſerved before, was the only one which recovered a due degree of health after embarkation, and which preſerved it during the voyage. This corps conſiſted of formed ſoldiers; and it practiſed at all times a correct economy. The 93d, a new regiment, arrived at Spike Iſland ſuffering from genuine contagious fever; the ravages of this diſeaſe, previous to embarkation, were conſiderable; after embarkation, contrary to what happened in moſt other corps, they ſomewhat abated.

What part of this improvement depended upon the arrangements of the officer appointed to the command, will be left to others to determine; but the benevolent and affectionate care, which Lieutenant-Colonel Gammel, on every occaſion, beſtowed on the concerns of the ſoldier, impreſſed at the time, and will ever continue to impreſs a ſentiment of gratitude on the heart of the author, who, in his official capacity, had daily opportunities of obſerving his conduct. The 29th light dragoons were alſo ſickly on their arrival at Cove: the ſeeds of a contagious fever were evident among them; and it is worthy of remark, that the tranſport, in which Lieutenant-Colonel Hay, the commanding officer embarked, a man well known for judgment and exactneſs in military economy, ſuffered no loſs, and actually arrived at Barbadoes without a man ſick; in the other, the ſickneſs was great, and the loſs equal to that of tranſports of infantry of like numbers.

But though the real cauſes of ſickneſs be not always obvious, or according to appearances, there being many inſtances where good health has been preſerved for a long voyage in ſmall and dirty veſſels, and under defects of perſonal cleanlineſs; while, on the contrary, the moſt ſerious and deſtructive ſickneſſes have prevailed on board of veſſels, large and airy, and in which no attentions of cleanlineſs and propriety, perſonal or otherwiſe, appeared to be omitted; yet the hiſtory of the tranſport John, employed as an hoſpital ſhip on the paſſage to St. Domingo, affords proof, that ſomething may be effected

by vigorous meaſures in the moſt aggravated degrees of ſickneſs, even on board of ſhip. There were on board of this veſſel, at the time of her departure from Cove, one hundred and twenty perſons, eighty of whom were actually ſick, or lately received from the hoſpitals on ſhore, in a precarious and uncertain ſtate of convaleſcence; the others belonged to the hoſpital corps, relieved, on the eve of ſailing, from orderly attendance on the ſick at Spike Iſland. Theſe were attacked with fever,—the greater number of them, ſoon after embarkation, and they furniſhed, in their illneſſes, examples of a diſeaſe concentrated and alarming in an extraordinary degree. Some were inſtantly knocked down, as it were, by a blow on the head, appearing, as if in a deep intoxication, or an apoplexy, ſpeedily arreſting or ſuffocating the powers of life: the aſpect of countenance, under theſe concentrated forms, was uſually dark and cloudy, the colour of the viſage like mahogany, with a tinge of yellow: Sometimes there was exceſſive pain of the head, and the eye generally was gloſſy and inanimate; but there ſeldom was any material increaſe of heat, or increaſe of ſtrength and frequency of pulſe; ſuſpenſion of ſecretions was obvious, and death ſometimes took place within forty-eight hours. In the firſt ten days, twelve of theſe men were carried off by this diſeaſe,—the moſt of them within the fifth day.

The John tranſport, notwithſtanding daily cleaning and frequent fumigation, was deeply infected, owing to a conſtant ſucceſſion of ſick or conva-

leſcents from infected hoſpitals for upwards of three months. The ſituation of the officers of health, as well as of the ſhip's crew, was by no means pleaſant; life was in danger, and it became a matter of concern to all, to uſe every endeavour to mitigate the evil;—to eradicate the ſeeds of contagion, while on board of ſhip, was not thought to be poſſible. It happened fortunately, under thoſe perplexing circumſtances, that the wind was fair and the weather fine;—an event which gave an opportunity of bringing every perſon upon deck, during the day, and of cleaning and fumigating the berths below. The perſons of the patients were alſo ſtripped naked, and waſhed clean daily; clean linen was furniſhed at leaſt three times a week, and clean bedding once or oftener; for it was diſcovered, that, not only the perſons of men, but that dirty clothes and dirty bedding may be made ſweet and clean, by the addition of oatmeal to ſalt water. Theſe means were punctually followed up, and the virulence of the diſeaſe became ſenſibly diminiſhed in leſs than three weeks. It was remarked above that twelve men died in the courſe of the firſt ten days; during the remainder of the voyage, the deaths amounted only to ſeven, three of whom were received, in a hopeleſs condition, from a ſickly tranſport, on the paſſage: But though the virulence of the diſeaſe was thus diminiſhed, yet relapſe occurred frequently, and the atmoſphere of the ſhip was ſo generally infected, that ſcarcely a perſon eſcaped ſickneſs in one form or other; it

was however frequently turned off in the commencement, and, if deciſive meaſures were employed in time, the danger of it was little to be dreaded.

The action of the cauſe of fever, on board of this ſhip, was irregular, and chiefly manifeſted itſelf in ſevere headachs, increaſing and abating periodically, in occaſional giddineſs or faintneſs, in nauſea, in ſickneſs, in bad or depraved taſte of the mouth, in want of appetite, in increaſe of thirſt, in the appearance of a foul and ſlimy tongue, in diſorder of the bowels, ſometimes a purging like diarrhœa, ſometimes coſtiveneſs, from ſeeming want of power of the inteſtinal canal, in want of ſleep, or in ſleep diſturbed by dreams of a frightful kind, with a variety of other complaints, influenced perhaps by the habits of the individual.

The ſickneſs, which prevailed among the troops aſſembled at the Cove of Cork, for the reinforcement of St. Domingo, furniſhes an extenſive field of obſervation on the nature of the contagious fevers of armies. The operation of the cauſe manifeſted itſelf in a great variety of forms. It was evidently connected with ſores and ſpreading ulcers of the legs, and more evidently ſtill with diarrhœa, with dyſentery, or ſevere gripings and bloody evacuations: the irregular forms, and ſlighter degrees of fever were numerous, the violent and threatening occurred daily, and the concentrated, ſuſpending life, as it were by a direct operation, appeared on ſeveral occaſions. It was obſerved above, that, while the

troops were on ſhore under tents, in wet and ſtormy weather, the prevailing form was dyſenteric; that it often became febrile under a roof, or on board of the ſmall veſſels employed as hoſpitals; and that it generally became febrile after embarkation. It may be further remarked, that the form was, or ſoon became febrile, violent and concentrated in the crouded hoſpital in the fort; that mortality was great, and that life there ſeemed often to be ſuffocated or arreſted without ſtruggle or reſiſtance: the diſeaſe in this ſituation ſeldom terminated in criſis, but it appeared to ſubſide; the patient ſtaggered about for a few days, and perhaps was eſteemed convaleſcent, when an attack recurring ſuddenly overwhelmed the vital powers by a rapid oppreſſion, or conſumed them ſlowly, by the effects of a local affection,—chiefly of the dyſenteric kind. In the barns, hovels and ſheds, the appearances of the diſeaſe were more irregular, and the ſymptoms were more threatening; but the mortality was comparatively ſmall, and recoveries were frequently rapid. On board of tranſports, where the patients remained below the greater part of the time, the diſeaſe was violent, concentrated and ſpeedily fatal; where brought on deck, and remaining on deck during the day, the effects were ſimilar as in the ſheds on ſhore; the ſymptoms then became irregular, the duration was ſhort; and, though a few days of convaleſcence was ordinarily ſucceeded by relapſe, yet the relapſe was uſually of leſs force, and leſs danger than the original:—Under confinement between decks, the diſeaſe ſeemed

to retain its full power of contagion; under expoſure to the air on deck, this power was evidently weakened; and where to this expoſure were joined daily waſhing of the body and purifying of the bedding, it was ſo far weakened, that its exiſtence, by the time of arrival in the Weſt Indies, was in many caſes, doubtful. In proportion as the force of the diſeaſe was weakened by the admiſſion of pure air, by moving about in pure air, by waſhing in cold water, and by frequent change of linen, the appearances became fluctuating, the duration ſhort, the relapſes ſudden, but ſlight, the forms remitting, intermitting, dyſenteric, ſometimes dropſical, for the moſt part periodical, but irregularly ſo, at leaſt following a law, different from the periodical movements of endemic fevers.

The preceding pages exhibit a ſummary view of the ſtate and progreſs of the contagious ſickneſs, which prevailed in that part of the Britiſh army, with which the author was connected, from the year 1793 to the year 1796. As the ſame or ſimilar cauſes have produced the ſame or ſimilar effects in other ſituations; and as they will continue to produce them at other and future periods, it becomes a matter of no ſmall importance, to inquire into the ſources of the error from which the calamity originally aroſe, the cauſes, by which it has been propagated, and, on many occaſions, aggravated from ſlight beginnings, to the moſt extreme degrees of virulence.

Soon after the termination of the American war,

the ſtrength of eſtabliſhed regiments was reduced to a low ſtandard. The number of troops, deemed ſufficient for the peace eſtabliſhment of the country, being agreed upon, it was judged to be better, to preſerve the baſis of a larger proportion of regiments, ready to receive recruits, in the event of war, than to augment the army by new corps, on the firſt exigence of ſervice. The reaſon is obvious, and the propriety of the meaſure cannot be controverted; but it was found upon trial, that the ordinary progreſs of recruiting was ſlower, than the circumſtances of a nation, ruſhing rapidly into war, required. An expedient was therefore adopted of augmenting the troops to the requiſite number, by raiſing companies on the footing of independents. Theſe companies, as to be raiſed in the ſhorteſt time poſſible, fell chiefly to the lot of men of wealth and influence,—moſtly young ſubalterns. To accompliſh the object, jails, workhouſes and manufacturing towns,—the great ſources of recruiting, were laid open; a certain number of men were ſpeedily collected, ſubmitted to inſpection, and, after ſome fluctuation of opinion about the manner of employment, incorporated into regiments, deſtined for ſervice. Had the queſtion been to bring together, and clothe in uniform, by the ſpeedieſt means poſſible, a given number of two legged animals, the buſineſs was done; but, the end and deſign of recruiting an army, being to ſelect men of ſound bodies, capable of undergoing the fatigues of war, and of virtuous minds impreſſed with the importance of defending the honour of their country,

no progreſs was made; for, though the muſter roll was extended, effective ſtrength was perhaps diminiſhed, by a load of encumbrances,—by the introduction of diſeaſe and vice; for to the incorporation of recruits from independent companies is traced the origin of contagious fever; and to the ſame ſource, in the opinion of officers of diſcernment, is attributed the lamentable degeneracy of morals, which has been ſo conſpicuous during the war.

The apparent ſtrength of the army was augmented to a certain extent, by the incorporation of independent companies into regular regiments; but the addition was, by no means, equal to the exigence. The recruiting of the independent companies had been accompliſhed in a ſhort time; and as there ſeemed not to be any other calculation but that of numbers, a ſimilar principle was adopted for the raiſing of entire new corps. A great field of ſpeculation and adventure was hereby opened to thoſe poſſeſſed of wealth and influence, or of activity and addreſs in the arts of recruiting; the uſual ſources were laid open, and Colonels and corps roſe up as by enchantment,—forms without ſubſtance. There are a few of them, and a few only which have attained a reſpectable name; the majority have diſappeared, and ſo nugatory has been the ſervice performed by them, that it is preſumed the precedent of augmenting the army, by ſimilar expedients, will not deſcend to poſterity. Diſeaſe and vice entered the army with the recruits of the independents; the maſs was infected, but there ſtill re-

mained ſome mixture of good; the new corps were nearly homogeneous,—particularly thoſe from Ireland, and from ſome of the large manufacturing towns.

Such, in a few words, is the ſource from which diſeaſe was introduced into the army. Under good regulations and a wholeſome diſcipline, it might have been checked, perhaps it might have been ſpeedily baniſhed; but while rank and command were more certainly attained by the money of a ſchool boy, or the activity of a crimp, than by a knowledge of the duties of an officer, or by the toils of active ſervice in the field, ſuch expectations were viſionary. Thus in the falſe eſtimate, which the miniſter of war formed of the value of a ſoldier, originated meaſures which threatened diſorganization of the army. The current is now checked; but to repair the injury done will require time, ſkill, and the exertions of a rigid virtue.

Beſides the above cauſes, depending upon the arrangements of the higher powers, other acceſſories are found, upon many occaſions, to propagate the contagion, and to concentrate its force. Among theſe may be reckoned defect of care in examining and aſcertaining the ſtate of health, exiſting among troops, previous to embarkation for foreign ſervice. From ſuch neglects, diſeaſe, even the latent ſeeds of diſeaſe, introduced on board of ſhip is called into activity, and gains ſtrength rapidly in the confined air of a crouded veſſel; the virulence is aggravated, in many inſtances, to the moſt extreme degree; the

ſhip receives an infection, difficultly eradicated, and diſeaſe is left, in legacy, to the ſucceſſors in a future embarkation It is proper to remark, for it is no more than juſt, that greater pains have been beſtowed upon the accommodations of tranſports during the preſent than in any former war; yet the mortality on board of ſhip was never half ſo great, the qualities of the ſubjects embarked far over balancing the advantages of the accommodation provided.

It will further be proper to obſerve in this place, that, beſides the miſchief ariſing from the incautious manner of embarking troops in tranſport ſhips, the arrangements of the medical department have added much to the calamities of the army. General hoſpitals, inſtituted for the relief of the ſick and ſuffering, have often, through want of attention, ſerved to extend and propagate fever; or to render it mortal, when not inherently of a fatal nature. The contagious fever of jails, hoſpitals and ſhips is proved by undoubted experience to be a diſeaſe of little mortality, under a pure air, and with ordinary attention; in crouded, and ill ventilated apartments, its ravages are dreadful. The preceding pages furniſh melancholy proofs of this fact: in general hoſpitals the mortality was prodigious; in regimental hoſpitals, or where men were diſperſed in ſmall parties, as is uſual with the ſick of regiments, it was commonly trifling.

It appears clearly from the preceding ſketch of the medical hiſtory of the Britiſh army during the preſent war, that contagious fever is an artificial

diſeaſe, that the mortality of it is increaſed and aggravated by artificial cauſes. It becomes the ſacred duty of a phyſician, to expoſe the foundations of theſe cauſes; as it then will be the duty of the higher authorities, to adopt meaſures, founded upon principles of ſcience, to prevent a renewal of their operation: The ravages of war are to be regretted at all times; ravages ariſing from ignorance are to be lamented, from inattentions and neglects to be deprecated. Means of remedying the evils alluded to do exiſt, and they are not of difficult diſcovery; they preſent themſelves to a mind of ordinary diſcernment, on the peruſal of an accurate detail of facts.

CHAPTER II.

Remarks on the Local Aſpects of ſuch Situations, in St. Domingo, as are occupied by Britiſh Troops; with a Summary Hiſtory of the more General Forms of Diſeaſe, prevailing at different Poſts, and in different Diſtricts.

SECT. I.

THE town of the Mole, St. Nicholas, is ſituated at the opening of a gorge or ravine, upon a flat and narrow piece of land, of a porous and open ſoil, left by the ſea or waſhed from the mountains. The bay, or harbour of the Mole is bounded, on the north-eaſt ſide, by a peninſula, rocky, barren, and of moderate height, running directly into the ocean; the

advanced point of the harbour on the ſouth-weſt is nearly parallel with the other; the hills which bound its ſide are elevated, and retire backwards into the country, ſomewhat in an amphitheatrical form, and, as it were, with certain ſteps of gradation, encloſe a baſon of about two miles in width, and five or ſix in depth. The aſpect of the ſurrounding country is uninviting, barren and rocky, or covered with bruſh-wood and low trees of ſtunted growth. A ſtream of water, of excellent quality, paſſing down the ravine, is conducted through the town by means of artificial canals; but theſe canals not being covered in, or in general not even lined with ſtone, are, in many places, gutters rather than aqueducts: the ſea breezes are uſually ſtrong, and temper the heat; when withheld, or when blowing from the weſt, heat is great and oppreſſive. Here alſo rains are rare: the houſes are, for the moſt part, ſmall, low, and without the convenience of piazzas.

In May 1796, the time at which the troops arrived at this place, the Mole afforded only very feeble defences againſt an interior enemy, and a very circumſcribed accommodation for a garriſon: the ſea breezes were then often faint; the air was heated beyond common, and rendered leſs fit for the purpoſes of life, by the great number of human beings and other animals collected into a narrow ſpace. The Mole, at preſent, has a much better appearance: a chain of blockhouſes with good roads of communication, ſecure it againſt deſultory attack; barracks, erected on the firſt banks of the

amphitheatre, within the chain of blockhouſes, afford good lodging for the troops; but the aſpect of a barren ſoil, and ſtunted vegetation ſtill fatigues and offends the eye. The climate of the Mole is by no means agreeable; heat is oppreſſive on ſome occaſions; and cold, in the mornings of December and January, is often unpleaſant and piercing, particularly when the wind is directed through the funnel of a ravine. It has been cuſtomary to conſider the Mole as one of the moſt healthy places of St. Domingo; but the adventitious cauſes of the mortality of June and July 1796 ſet aſide, the balance does not appear greatly in its favour.

The town of *St. Marc* is ſituated at the bottom of a deep bay, encloſed on the ſides by high hills or mountains. The houſes are well built and commodious; and there is through the whole an appearance of neatneſs and order. A flat or valley ſurrounds St. Marc, and extends to ſome diſtance in the rear; two ſmall rivulets alſo paſs through it; the currents of which are ſometimes conſiderably interrupted. The level ſurface of the plain in the rear neceſſarily affords exhalation; and St. Marc, ſince its firſt poſſeſſion, has ever been a fatal poſt to Britiſh troops; even the native inhabitants ſuffer ſeverely in certain months of the year; and, in ſome ſeaſons, ſickneſs is fatal and epidemic among them, particularly in the ſouth-weſt quarter of the town: rains are frequent; the ſea breeze is regular, and ordinarily ſtrong.

L'Arcahaye. The principal town of this pariſh

is placed upon the margin of the ſea, in a plain ſix or ſeven miles in breadth, and upwards of twenty in length. The plain is watered by means of canals, and the ſugar eſtates are in admirable culture; the ſoil is light, and, in many places, gravelly. The plain of L'Arcahaye has not, during the war, been a permanent ſtation of Britiſh troops; but the detachments, which have occaſionally done duty in the diſtrict, have ſuffered as on other plains; on the contrary, troops cantoned in the mountains have almoſt always been ſtrangers to ſickneſs.

The town of *Port-au-Prince* is ſituated in the receſs of a bay, on a triangular plain, inclining gently towards the ſea; a mountain, of conſiderable height, covers it on the ſouth ſide; the eaſt, and part of the north are bounded by ſmaller hills of ſtony, gravelly ſoil, or chalky porous rock, called tûf; the weſtern aſpect is open to the ſea. In this manner, the ſcite of Port-au-Prince repreſents an oven in form; while it poſſeſſes in effect the quality of the oven in reflecting heat, which is conſequently great at this place, during four months of the year. The ſea breezes, during ſummer, are ordinarily weak, and delayed beyond the uſual hour of arrival at other parts of the coaſt; land winds, in dry weather, are often ſtrong and unpleaſant, parching up both animal and vegetable life; rains, in the ſeaſon of rain, are frequent and heavy. The ſoil of the plain of Port-au-Prince appears to have been formed by waſhings from the mountains, and the mud of the ocean; ſome part of the town was for-

merly ſwamp, ſeveral of the lower ſtreets being actually founded on piles, or logs of wood. The borders of the ſea, on either ſide of the town, are muddy, foul and overgrown with mangroves, logwood, noiſome plants and weeds, more particularly about the weſtern gate, called the gate of Leogane. The poſt of Bizoton, a fortreſs about two miles from Port-au-Prince, on the road to Leogane, deſerves notice. It occupies a round eminence of tûf or chalky ſtone, and is ſurrounded by ſwamps and foul ravines.

In viewing the general form of the bay in which Port-au-Prince is ſituated, the high land of the platform and Cape Tiberoon are two oppoſite and diſtant points; from the one, a ridge of mountains runs eaſtwards, from the other ridges, or the extremities of ridges, interrupted ſometimes by intervening plains, but, from the point of St. Marc continued in an unbroken line, run in a ſouth-eaſterly direction, gradually converge, and form the ſides of a funnel, which conducts into the interior of the country. In the ſea, comprehended within the extreme points of this funnel, lie ſeveral iſlands, of which Gonave and Cayemittes are of conſiderable extent. The ſides of the funnel approach each other, and where the ſea terminates the diſtance is perhaps not leſs than twelve or fourteen miles; the ſhores of this extremity of the bay are low and foul, over-run with mangroves and offenſive weeds; the plain, which extends from thence into the interior, as far as the Salt Lake, which penetrates to the centre

of the iſland, is known by the name of Cul de Sac; the ſoil of this plain is various, often light and porous, in ſome places rich and fertile, in ſome ſwampy and uncultivated, in others dry, ſtony and barren. In the wet ſeaſon thé ſea coaſts, which are of a deep ſoil, are often overflowed; and unleſs, where drained and cultivated, actually under water;—a certain tract, on the north-eaſtern ſide of the plain, from the termination of the ſea to the commencement of the lake, is in ſome meaſure a ſalt marſh. The cultivated part of the plain Cul de Sac, prior to the revolution, was admirably well watered by numerous canals or aqueducts; but many of theſe are at preſent in bad repair, the greater number of the plantations are ravaged, the houſes deſtroyed, the fields overgrown with weeds and rubbiſh. The north-eaſtern boundary of this plain,—a continuation of the mountains of L'Arcahaye, joining with thoſe of Grand Bois, is ill provided with water, and the lower parts of it have a ſteril appearance; the ſouth is more fertile in ſoil, well watered, and, in former times, was well cultivated.

Croix des Boúquets, a large village, or rather bourg, placed in the centre of the plain Cul de Sac, ſtands upon a dry and gravelly ſoil, and ſuch as might be ſuppoſed to be healthy; but it has for ſome time paſt been the ſtable of horſes and cattle; it is conſequently dirty and offenſive, and perhaps leſs healthy than it formerly was.

The ſouth-weſt diviſion of St. Domingo, the part

of which in poſſeſſion of the Britiſh, known by the name of Grande Anſe, affords ſome remarks of importance in the hiſtory of health.

Peſtel, a poſt on an inſulated rock on the ſea-coaſt, one of the extremities of the eaſtern cordon, has been occupied for ſome time by a detachment of Engliſh ſoldiers. The ſoil of the country ſurrounding this rock is a dry and huſky red mould; no water, ſtagnant or running, is found within ſome miles of it. Intermitting and remitting fever, the diſeaſe of tropical climates, is little known at this poſt; where it has appeared, it has ſeldom been of a bad kind; bowel complaints are more common, and more troubleſome; and ſores, or ſpreading ulcers of the legs prevail ſo much, that one-fourth, at leaſt one-fifth part of the detachment is uſually confined on that account.

Cayemitte lies about ten miles weſt of Peſtel, near the mouth of a conſiderable ſtream of freſh water, with ſwamp on each ſide, extenſive and unuſually offenſive. Britiſh detachments have ſuffered ſeverely at this place; and the natives themſelves are not exempted from formidable attacks of diſeaſe.

Jeremie, the principal town of the diſtrict, is placed upon the declivity of a hill, open and well expoſed to the breezes from the ſea; the air is cooler and more refreſhing, particularly at night, than on moſt other parts of the ſea-coaſt, yet in thoſe houſes, which occupy the ſea-beach, or that are placed in the ravines, of which there are ſeveral, the heat is uncommonly great. The

fort is on the ſummit of a ridge of hill, running in a north-eaſt direction between the ſea and the embouchure of a conſiderable river, the plain on each ſide of which is extenſive, and ſome part of it liable to be overflowed in wet weather, but that portion of it which moſt regards the fort, is planted with ſugar cane. Jeremie has always been conſidered as a healthy ſituation, and it unqueſtionably is ſo, compared with other places, yet intermittents and remittents appear frequently, and diarrhœa or dyſentery is often troubleſome.

The village of *Donna Maria* conſiſts of a few houſes, placed on the ſea-beach, near the embouchure of a conſiderable ſtream of freſh water. The ſoil, ſimilar to that of moſt other ſea-coaſts in this iſland, appears to be an accumulation of ſand and mud left by the ſea, or waſhed from the mountains; on either ſide of the village are ſmall lagoons of ſtagnant water. The natives ſuffer conſiderable ſickneſs during the rainy months; the few Britiſh, who were ſtationed here for a ſhort time in autumn 1796, fell down rapidly, and died in great proportion.

Irois, a bottom or plain ſurrounded on three ſides by an amphitheatre of hills, in which is built a fort upon an inſulated eminence or ridge, nearly ſurrounded in wet weather, by impracticable ſwamps, or lagoons, formed by interruption to the courſe of a rivulet, which runs through the valley. This valley, emboſomed in mountains, is of an extreme richneſs of ſoil. It was formerly planted with indi-

go, it is at preſent over-run with noiſome weeds; the heat is exceſſive; the rains are frequent, and the exhalations are actually offenſive to the ſenſes.

The above are the chief poſts on the ſea-coaſt occupied by Britiſh troops;—ſome few in the interior require to be mentioned.

After paſſing over the chain of mountains, which bound the north-eaſtern ſide of the plain Cul de Sac, we enter the diſtrict of Mirebalais, an extenſive valley of beautiful proſpect, interſperſed with numerous ſmall hills, interſected by ravines and rivulets, and irregularly covered with woods. The Artibonite, a large river, which frequently and ſuddenly overflows its banks, runs through the middle of the valley. The principal town of the diſtrict ſtands upon high ground, within a few hundred yards of the river; the ſituation is pleaſant, but it is not remarkable for health. The power of the ſun is uſually very great in this valley, during the months of ſummer. In May, June, and July 1796 the weather was uncommonly dry, the heat was exceſſively great, a fever raged epidemically among the inhabitants, carried off conſiderable numbers of them, and nearly annihilated a detachment of the 82d regiment of foot ſtationed at this place.

Banica, a town in the Spaniſh part of St. Domingo, and nearly in the centre of the iſland, was taken poſſeſſion of by a detachment of Colonial troops, with ſome European cavalry, in Auguſt 1796. This part of the iſland has ſcarcely known culture; numerous herds of cattle feed on the plains,

and ſmall patches of caſſava and Indian corn are planted near the cabins or hovels of the indolent inhabitants, who uſually fix their abodes near rivulets. Banica is placed upon the banks of the Artibonite, where it is a fordable, but conſiderable river. The air is light, and the heat, though ſometimes high, is rarely oppreſſive; an unaſſimilated European is capable of taking exerciſe, even of walking, without fatigue, and without danger. The detachment of cavalry ſent to this place remained in good health till the period of their recal.

SECT. II.

THE majority of the infantry, embarked at Cove in the month of November 1796, for the Iſland of St. Domingo, was originally of a bad quality; but in addition to the original quality, hardſhips on ſhore, from bad accommodations during bad weather, and other cauſes which depreſs the mind, and influence the health, require to be eſtimated in viewing the hiſtory of this expedition. In each régiment ordered for this ſervice, the 67th excepted, a fever prevailed of a high degree of contagion and of great virulence. A diſeaſe appeared in the month of October in dyſenteric form, in the encampment on Spike Iſland, and from unavoidable accumulation in the fort, the only place which could be obtained for an hoſpital, the form changed to febrile, of great force, and latterly of great mortality. It does not belong to this place to trace in detail the cauſes of

the miſeries of this expedition. A contagious fever has been, in a manner, engrafted on the Britiſh army, ſince the commencement of the war; it has been propagated from corps to corps through negligence and defects of interior economy; in the preſent inſtance, it was aggravated to a degree of uncommon virulence, by accumulation in narrow ſpace. But though the diſeaſe was of a character highly contagious on Spike Iſland and in the harbour of Cove, nay continued ſo, in ſome ſhips, till the arrival at Barbadoes, yet where proper arrangements were adopted, and proper plans of cleanlineſs purſued, the virulence abated gradually in advancing to the ſouthward; the malady changed its character at Barbadoes; relapſes, it muſt be allowed, were ſtill frequent, and original invaſions occurred in ſome inſtances, but the power of communicating was viſibly and materially weakened.—On the 1ſt of May the remains of the expedition arrived at the Mole. Contagion was then traced with difficulty; relapſes were frequent, but they, for the moſt part, aſſumed a dyſenteric or a remitting form, leſs regular however, in their periods than the remitting endemic of the country.

May 30. Many relapſes occurred among the troops from Ireland in the early part of May; but they were generally ſlight, and often aſſumed a remitting form. Towards the end of the month, ſeveral inſtances of the concentrated endemic, uſually called Yellow Fever were obſerved, exhibiting ſtrong marks of vaſcular excitement in the

commencement, and terminating frequently with black vomiting, and hæmorrhage from different parts of the body.

St. Marc, June 9th. A ſmall detatchment of the 69th regiment of foot embarked at the Mole for Port-au-Prince, on the 30th of May. Every individual of the detatchment was in health at the time of embarkation. The corps had arrived in St. Domingo about four months previous to this date, and the detachment at the Mole had as yet ſuffered no ſickneſs: the day after embarkation ſeveral men became ill, and on the 3d of June twenty were ſent on ſhore at St. Marc, from one ſhip only; three of theſe died next day, and eight or nine more within the three days following;—the diſeaſe, the concentrated endemic of the Weſt Indies, commonly called Yellow Fever:—the leading features were the following.

There was vaſt anxiety and diſtreſs in the early ſtage, reſtleſſneſs and an undeſcribable fidgetting; there was alſo, for the moſt part, ſome commotion in the vaſcular ſyſtem in the beginning, but it was ſoon over, ſo that by the end of the ſecond day, the pulſe could ſcarcely be diſtinguiſhed from the pulſe of a man in health, unleſs by a want of expanſibility and energy of contraction; the ſkin was at the ſame time dry, the countenance dry and withered; the tongue was frequently clean, particularly on the edges; thirſt was ſeldom troubleſome; vomiting was ſometimes obſerved, but bilious vomiting was rare; the eye was inanimate, and the colour of the white

was often duſky, and as it were marcid, but rarely of the orange yellow till towards the cloſe of the diſeaſe, when, together with the yellow colour of the tunica albuginea, there was alſo an appearance of inflammation, or more properly ſpeaking the veins appeared diſtended with red blood, as if filled by injection. In ſome caſes there was purging of blood, or rather a conſtant oozing of blood through the whole tract of the alimentary canal; hæmorrhage from the lungs occurred in ſome, hæmorrhage from the noſe in many; the matter thrown up, when vomiting did take place, was uſually clear and ropy,—in the laſt moments it was ſometimes black; jaundiced yellowneſs was by no means common, even in the late periods, but the aſpect was at all times duſky, and ſuch as may be called marcid; a certain wandering of delirium occurred in ſome; but in general the intellect was clear, and the mind ſingularly ſtrong, or rather indifferent to the approaching event.

Mirebalais, June 19th.—A detachment of the 82d regiment of foot, conſiſting of three hundred men, went to Mirebelais about the time the diſtrict was taken poſſeſſion of by the Britiſh. The corps had arrived in St. Domingo in the month of Auguſt 1795; the poſſeſſion of Mirebalais followed ſoon, and the detachment employed on this ſervice remained healthy till the beginning of April 1796. From the 1ſt of April until the 19th of June, it loſt ninety-two men, and ſeveral officers: the deſtruction of the detachment was foreſeen, if it remained at Mirebalais; it was therefore propoſed, that it ſhould be inſtantly

removed to the ſkirts of Grand Bois; but the propoſition was not complied with: from the 19th of June to the 13th of July, forty more died; and, by the end of September, only ten of the private men were left;—the officers and non-commiſſioned alſo ſuffered ſeverely: the ſurgeon died early in June; and, from that period, the care of the ſick was intruſted to a French practitioner, a native or reſident of the place.

This fever, as appeared by actual inſpection on the 19th of June, was frequently a diſeaſe of type, moſt uſually of the double tertian form, with bilious vomiting and purging, or particular affection of the alimentary canal and biliary ſyſtem; the ſhades of yellowneſs were various,—from a ſlight tinge to that of a Seville orange: but though the more common form was remitting, or like an aggravated endemic in autumnal months in tropical or warm climates, there occurred, on many occaſions, inſtances of the purer form of yellow fever of rapid courſe, terminating with black vomiting, and hæmorrhages from different parts of the body.

The author, at this time had not determined, in his own mind, the relation, which, the form of diſeaſe named Yellow Fever, bears to the ordinary endemic of the Weſt Indies. The facts connected with the hiſtory of this detachment convinced him, that, the fever of the Weſt Indies, aggravated and ſpeedily fatal, or remitting, mild and long protracted is fundamentally one diſeaſe, ariſing from one common cauſe,—of difference indeed in point of force,

of ſome difference perhaps in modification, but chiefly influenced, in its mode and form of action, by the circumſtances of the ſubject. It was alſo proved to him, by the hiſtory of the ſickneſs prevailing among the inhabitants of Mirebalais, during the months of June, July, and Auguſt, that natives, or thoſe long reſident in tropical climates, are not exempted from occaſional attacks of fevers, ſo concentrated and violent, as to exhibit the common ſigns, or to aſſume the character of the yellow fever of Europeans.

Port-au-Prince, July 29th. The uncommon degree of ſickneſs which has occurred, in every embarkation of troops, proceeding from the Mole to Port-au-Prince, or other poſt in St. Domingo, appears ſingular and not eaſily explained. The 29th light dragoons embarked at the Mole about the end of June;—the men embarked were in perfect health. During a paſſage of four or five days, the ſick liſt became formidable, and one ſhip alone loſt thirty men; the ſtore and merchant ſhips, which ſailed under the ſame convoy, all loſt men during the paſſage, and ſeveral of them in conſiderable numbers.—A ſimilar, perhaps even a greater ſickneſs and mortality was experienced by the York Huſſars, in their paſſage from the Mole to St. Marc.

The diſeaſe, under which the 29th light dragoons ſuffered, was generally a diſeaſe of a moſt concentrated kind; in many caſes the powers of life were, in a manner, ſuffocated, or rapidly overwhelmed;

in ſome there was conſiderable excitement,—a furious delirium, and a courſe finiſhed within twenty-four hours,—often by convulſion; in the greater number, there was lividneſs of countenance, a lividneſs of the limbs, a purpliſh colour of the hands, feet and joints, ſimilar to the lividneſs of ſea ſcurvy; the eye was often clear, vacant, and idiot-like; the pulſe was ſmall, confined or oppreſſed, rarely irregular, quick and energetic, or with much increaſe in point of frequency; ſighing, deep breathing, and inability of expanding the cheſt were common; there were times of great diſtreſs, and times of apparent eaſe, but there were not any diſtinct paroxyſms and remiſſions; there was often a general torpor of mind as well as of body,—a ſuſpenſion, or ſluggiſhneſs of the vital energies; the circulation of the blood ſeemed to be impeded, the current moving on heavily, or appearing, on ſome occaſions, to ſtagnate in the veins.

The Rohan Huſſars alſo ſuffered dreadfully, during June and July. This corps had been long embarked on board of ſhips: it touched at the Mole, remained a ſhort time, and arrived at Port-au-Prince in exceſſively hot weather. The form of diſeaſe was a violent one, and very fatal, the mortality, under the firſt attack, exceeding one half:—the leading features were extreme lividneſs, hæmorrhages, purgings of blood, black vomiting, and purging of ſimilar matters, yellowneſs of the deepeſt caſt, and, in ſome inſtances, convulſions and rapid death.

It was obſerved on this occaſion, that the form of the diſeaſe was influenced by the qualities of the ſituation, in which the original cauſe was ſuppoſed to exiſt, as well as by the qualities of the place of actual invaſion; for inſtance, the form was continued, and often violent on board of ſhip, in dry, barren and parched ſituations; type, though obſcure, was perceivable in wet and ſwampy ones. In this manner, men attacked at Bizoton, or who appeared to have received the ſeeds of the diſeaſe on the duty of that fortreſs or ſimilar ſituations, experienced in general a fever of type, the paroxyſms uſually ſubſiding at a given period, though without diſtinct marks of ſolution:—the patient, whoſe aſpect was often dry and withered from the beginning, ſunk down on the fifth day, in ſtupor or coma, and ſeldom ſurvived forty-eight hours from this acceſſion,—this occurrence of a new form of ſymptoms.

Mole, September 13th. The moſt concentrated form of the diſeaſe of the country,—the yellow fever in all its horrors, prevailed at the Mole during the months of June and July in a great and uncommon degree. It appears by deſcription,—for the author was not preſent at the time, to have been for the moſt part, a fever of a continued kind, concentrated in degree, and occaſionally varied in form. It exiſted in Auguſt, and it exiſts at preſent, though its ravages have abated conſiderably, except in the 67th regiment. The men of this regiment are generally young, bulky and muſcular; they ſuffered little from the contagious fever at the Cove of Cork, and, till

the month of Auguſt, were ſtrangers to general ſickneſs; they are, and have been much expoſed to the ſun, but the confined ſituation of the Mole does not permit of the execution of plans of regular and active exerciſes, of the value of which, in the preſervation of health, the commanding officer of the corps is one of the few military men of the preſent day, who entertains juſt and proper ideas. The ſymptoms of this diſeaſe, among a ſet of men vigorous by nature, and often tranſgreſſing the rules of temperance, were ardent and violent, with much vaſcular excitement in the earlier periods, often ſubſiding on the third day, and terminating rapidly in black vomiting, and a formidable train of horrors. The 56th regiment, encamped upon the ſame ground with the 67th, ſuffered dreadfully in the month of July, and the ſickneſs was ſtill conſiderable in the month of Auguſt. The qualities of the 56th are different from thoſe of the former; the 56th had ſuffered much from the contagious fever at Cove, and on the paſſage to the Weſt Indies;—the corps poſſeſſed little energy, the ſymptoms of the diſeaſe were leſs violent than in the 67th, the progreſs was often ſlow, and the appearances inſidious in the commencement; a ſlight febrile indiſpoſition, a purging of watery ſtools, an obſcure or ſlight remittent, after a continuance of four or five days often terminated ſuddenly and unexpectedly in withering, in lividneſs, in black vomiting, in delirium, or convulſion.

The ſickneſs which prevailed at the Mole, during the months of June and July, was great, and the

mortality was alarming; the uncommon ſickneſs and mortality alſo, which took place under every tranſport of troops to different poſts, appeared inexplicable. It was believed by ſome that contagion lurked in the ſhips, but this was very clearly proved not to have been the caſe. A detachment of the 67th regiment was embarked for Port-au-Prince in the beginning of Auguſt, in perfect health at the time of embarkation, in veſſels free from the moſt diſtant ſuſpicions of miſchief, and with every convenience of accommodation; yet on arrival at Port-au-Prince, a voyage of four or five days, the ſickneſs and mortality nearly equalled that of the 29th light dragoons mentioned above.

Irois, October 10th. The diſeaſe which prevails at Irois is generally a diſeaſe of type, but paroxyſms and remiſſions are not always diſtinct and clearly marked. The complaint is often ſo ſlight in the beginning as not to give alarm; but on the fifth day it often changes into a comatoſe affection, and terminates fatally, perhaps in another revolution; ſometimes it continues for ſeven days, as a bilious remittent, with purging, vomiting, thirſt, great internal heat, dry tongue, anxiety and ſallow aſpect, but without threatening immediate danger; on the eighth the head becomes affected with delirium: coma, ſtupor, torpor, ſuſpenſion or exhauſtion of the nervous energy ſupervene, and the diſeaſe terminates on the twelfth, or fourteenth, fatally more frequently than favourably:—the nails often appear black during the courſe of this diſeaſe, and the blackneſs gra-

dually advances forwards, like a blemiſh, in the progreſs of recovery.

Croix des Bouquets, January 10th, 1797. The regiments of Rohan and Hompeſch, with the legion of Montallembert, chiefly Europeans, are cantoned in the plain Cul de Sac. The legion has been longer in the country than the others, and is conſequently better aſſimilated. The Rohan, as has been mentioned, arrived at Port-au-Prince early in June, and ſuffered dreadfully from a moſt concentrated form of fever, during that and the following month. The Hompeſch arrived later, was cantoned in the plain, and ſuffered leſs till the month of September, during which and the two following the rage of ſickneſs was as great, as it ever had been in the corps of Rohan. Of the Hompeſch, ſome companies were quartered on ruined, and conſequently uncomfortable habitations,—amidſt ſtagnant water and other nuiſances; others occupied plantations, in ſome ſtate of repair, and furniſhed with tolerable accommodations; ſickneſs prevailed in all, but it was different in degree, according to the obvious qualities of the reſpective ſituations. The diſeaſe, upon the whole, was generally a diſeaſe of type in the beginning; it continued ſo for ſeveral days in many; even ceaſed, and, after ſome time, relapſed in continued form, with torpor, ſuſpenſion of the nervous energy, and rapid withering; in ſome inſtances the firſt, and in many the ſecond paroxyſm of theſe relapſes proved fatal. In this diſeaſe, even under remitting form, there was deep yellowneſs in ſome; in others a livid

colour, or duſky brown, like mahogany; petechiæ were not uncommon during the courſe, and they even ſometimes remained, after conſiderable progreſs in recovery; hæmorrhages from different parts of the body were frequent.

A circumſtance was obſerved in one of the companies of the Hompeſch quartered at Vaudreuil, a plantation on the plain, that deſerves perhaps to be mentioned.—Ophthalmia prevailed, in an uncommon degree, during the rage of ſickneſs in the other companies of the corps; and it followed the febrile periods ſo faithfully, as to ſuggeſt the idea that it originated in a febrile action, locally exerted; the eyes, and eyelids were exceedingly inflamed and watered much;—if this inflammation was forcibly repreſſed by aſtringent applications, flux or formal fever was often the conſequence.

Port-au-Prince, *April* 3*d*. Intermitting and remitting fevers became frequent among the troops, in garriſon at the Mole, in the months of October and November, and carried off a conſiderable number of ſubjects. The ſickneſs abated in December, and ceaſed in January. March and February were healthy months in every part of the iſland: there were then few or no recent attacks, though many chronic complaints, the ſuite of acute diſeaſes, ſtill remained in the hoſpitals.—It is worthy of remark in this place, that ſymptoms uſually called nervous, or ſuch as ſhow ſenſibility and action of the moving powers, tremors, ſtartings, derangement of intellect, &c. were rarely ſeen in the fevers of the troops

quartered in the plain, before the beginning of January. From that period, an increaſed action of the arterial ſyſtem was more obvious;—from a ſtate of oppreſſion, its motions ſeemed gradually to develope, and as it were extricate themſelves by a continuance of effort.

Port-au-Prince, May 3d. In the courſe of laſt month ſickneſs increaſed rapidly in the garriſon of Port-au-Prince and its neighbourhood, but more eſpecially among the detachments, which ſupplied the duty of the poſt of Bizoton. Two thirds at leaſt, of officers as well as men, who ſpent a fortnight at this place, either returned ill, or became ill, in a very ſhort time after return.—The diſeaſe preſerved its uſual character of obſcure remiſſion, and deficient excitement during the paroxyſm;—the mortality as yet has been inconſiderable.

SECT. III.

Port-au-Prince, November 15th, 1797. The poſt of Bizoton, which ever ſince its firſt poſſeſſion by the Britiſh, has been one of the chief ſources of ſickneſs and mortality to the troops ſerving in the diſtrict of Port-au-Prince, was given up in the month of May to the defence of colonials. Since that period the recent attack of fever has been more rare; but relapſe of fever, contracted while on the above duty, continued to fill the hoſpitals, and ſerved principally to ſwell the liſt of mortality of the month of June. Bizoton was always eſteemed a chief ſource of de-

ſtruction to the garriſon of Port-au-Prince, and had proofs been wanting of the truth of the opinion, the events of the months of April and May furniſhed decided ones; a party of the 5th Weſt Indian regiment, conſiſting of ſeventeen men and four officers, the greater part of them in ſome meaſure inured to a tropical climate, experienced ſevere attacks of this fever, (one man excepted), in a reſidence of leſs than one month; nay further, the black troops, who ſucceeded the Britiſh in the duty of the fortreſs, ſuffered and continued to ſuffer conſiderably; and of the Creole French officers, ſeveral have been extremely ill, and ſome have actually died.

The form of this fever is moſt uſually double tertian; the paroxyſms are marked by a peculiar torpor, or ſuſpended action of the moving fibre, principally obſervable in the motions of the vaſcular ſyſtem; this ſuſpenſion inſenſibly gives way after a certain duration; the pulſe, as it were, developes; the faculties of the mind emerge; the countenance brightens up, or becomes ſerene and clear, but theſe flattering appearances are ſeldom of long continuance; a ſimilar ſuſpenſion recurs at a ſhort interval, and the patient dies, in a few hours, torpid and comatoſe. Spaſms and local pains, tremors, ſtartings, active and lively derangement of intellect, or other ſigns of re-action are rare in thoſe concentrated forms. It moreover happens frequently, that this fever of Bizoton begins mildly and inſidiouſly, ſometimes in form of a diarrhœa or flux, ſometimes as a ſingle tertian, the type of which anticipates ir-

regularly, overſtepping, by long ſtrides, the ordinary laws of anticipation; or from ſingle it becomes double, at a certain period of the courſe. Under ſuch circumſtances, ſtupor, coma, apoplexy, torpor, or ſuſpended action of the moving fibre aſſume the place of a regular paroxyſm, which ſometimes vaniſhes gradually, but rarely has a termination by ſweat;—theſe unfavourable changes happen at different periods, but the fifth day is, upon the whole, the moſt remarkable.

The minor ſymptoms of this diſeaſe are various and fluctuating; but there are ſome appearances uſually preſent in this, as in other fevers originating in ſimilar ſituations, which deſerve remark; of theſe a torpid and duſky aſpect, a tongue dry, rough and foul, oftener moiſt, ſmooth, foul and of a milky whiteneſs, ſighing and heavy breathing, anguiſh, anxiety or uneaſineſs at ſtomach, and in the epigaſtric regions, thirſt, or an abſence of thirſt not correſponding with appearances, nauſea, vomiting, want of reſt, uncomfortable ſenſations, and, upon the whole, ſigns of increaſed or deranged action of the alimentary canal and biliary ſyſtem are the moſt conſpicuous.

It had long been propoſed to eſtabliſh hoſpitals of convaleſcence in the interior of the Grande Anſe, or on the mountains of L'Arcahaye, in both which ſituations European troops had uſually enjoyed good health. The Grande Anſe was thought to poſſeſs advantages over L'Arcahaye, in ſeveral reſpects, but the vicinity of L'Arcahaye to Port-au-Prince

occaſioned a preference to be given to the latter. The propoſal had been often made, and, as it carried with it convincing proofs of benefit, it was always approved of in general terms, but ſtill nothing was attempted to be done. The repreſentation of its benefits was renewed in the month of April, preſſed with earneſtneſs, and meaſures were at laſt taken to carry the plan effectively into execution. A field officer, with medical aſſiſtance and hoſpital furniture, thirty men in health, and twenty in a ſtate of convaleſcence, was ordered towards the end of May to proceed to L'Arcahaye, and from thence to the mountains and quarter agreed upon, to lay the foundations of the eſtabliſhment. The commandant of the diſtrict, by previous agreement, had charged himſelf with the tranſport of the men and baggage, and the neceſſary accommodation of lodging; but he was ſo little attentive to the execution of his promiſe, that it was found neceſſary, after a detention of ſix weeks on the plain, to order the party to return to Port-au-Prince, the convaleſcents, by this time, having relapſed to a man, and even the greater part of thoſe, who left the garriſon in health, being actually ill. The deſign was thus abandoned; and the failure of the undertaking, while it furniſhes a proof of the inferior conſideration, in which medical arrangements are uſually held in armies, ſerved to fill the hoſpitals, and added conſiderably to the mortality of the month of July.—The plain of L'Arcahaye is unhealthy to Europeans; but chagrin and ennui probably aggra-

vated the ordinary operation of morbid cauſes on this detachment.

The evacuation of Mirebalais and Grand Bois, unqueſtionably a ſuſpicious tranſaction, made ſuch an impreſſion upon the immediate proprietors, and even upon the people at large, that the repoſſeſſion of theſe diſtricts, independent of their value in a military point of view, became a meaſure of neceſſity, in order to regain the confidence of the inhabitants. An expedition was accordingly planned, and undertaken for this purpoſe; and the object was effected, without material loſs or oppoſition. The black infantry compoſed the body of the force; it marched to Mirebalais by two principal routes, accompanied by Britiſh, foreign and colonial cavalry. The heat of the days, the cold of the nights, occaſional rains, ſcarcity of food, ſcarcity of water, and tedious, interrupted travelling on bad roads, were conſidered as hardſhips; and they certainly were ſo to troops, not inured to military ſervice; ſome few individuals were overcome by the power of the ſun; but bleeding, waſhing with cold water, where the means were at hand, or reſt for a few hours, under the ſhade of a tree, uniformly reſtored them; no ſerious accident happened, and in ſeven or eight days, the Britiſh and foreign cavalry returned to the plain of L'Arcahaye, with ſome men indiſpoſed, but with leſs ſickneſs than ordinarily happens in a like period of reſt.

Eaſe and indulgence followed this ſpurt of exertion, and in four or five days fever began to make

its appearance, more or leſs in every corps, but more generally among the huſſars of York than in any other;—it increaſed rapidly for eight or ten days. The plan of another expedition having been formed in the interval, thoſe actually ſick were ſent to hoſpitals, thoſe in health were ordered to move on to St. Marc. The march, from L'Arcahaye to St. Marc, cannot be juſtly conſidered as a march of fatigue, but the troops met with diſappointment on their arrival. The movement did not take place at the time intended; and in leſs than a fortnight, few were left to undertake it;—they were nearly all ſick.—The conſequences of this expedition filled the hoſpitals for the month of July, and the diſeaſes reſulting from it, may be conſidered as the principal cauſe of the mortality of that, and of part of the enſuing month.

The apparent effect of this expedition upon the health of the troops deſerves a curſory remark. It is a doctrine, commonly maintained by military men, that European ſoldiers are not capable of undergoing the fatigues of field ſervice in the tropical climates of the Weſt Indies; and the ſickneſs, which followed this excurſion to Mirebalais, has been conſidered as a direct proof of the opinion; but if effects be traced to their proper cauſes, the fact will be found to be directly the reverſe; for though it be true, that ſome men failed from the fatigues of the march, or from cauſes of accident, yet it was not till after three or four days of indulgence, that ſickneſs, properly ſo called, began to appear. This

ſickneſs increaſed rapidly; yet thoſe, who, by duty or otherwiſe, were kept in a ſtate of employment and activity, generally eſcaped: hence the maxim of ſo much importance in military operation, viz. that health is beſt preſerved, even in tropical climates, by exertion of body and energy of mind, inſtead of being overturned, is eſtabliſhed by the experience in queſtion. The fact is certain, and the cauſes of the fact are obvious to men acquainted with the laws and economy of the animal body, but theſe cauſes will not ſoon preſent themſelves, in a convincing ſhape, to the bulk of mankind, eaſily deceived by appearances, which correſpond with pleaſurable impreſſions on the external ſenſes. It is thus uſual, to impute diſeaſe to immediate ſufferings from hunger or hard living, continued labour, or fatigue; a rich table, and a bed of down are not believed to have a ſhare in the evil; yet indulgences were here, as in other inſtances, the direct cauſes,—the power of which cauſes was increaſed, in a high proportion, by the preceding abſtinence and fatigue.

The poſt of Fourmier, on the ridge of mountain, which covers Port-au-Prince on the ſouth, furniſhed a conſiderable number of ſick to the hoſpitals, during the months of June, July, and Auguſt. The complaint was chiefly of a dyſenteric form, and not without danger. The firſt ridge of mountain, though very elevated, is not perhaps beyond the reach of exhalation from the plain and ſea-coaſt. This exhalation might, indeed, be conſidered as the

ſource of the evil; but accidental cauſes, there is reaſon to believe, had alſo ſome ſhare in the production of the malady, at leaſt in modifying the form. The proviſions were often exceptionable; and it is eaſy to conceive, that ſalt pork and bread of indifferent quality, with rain water for drink, were likely to occaſion diarrhœa, which in time degenerated into flux. The diſeaſe was ſlow in its progreſs, and without diſtinct marks of fever; but the event was often unfortunate, when perſons, advanced to the latter ſtages, were removed to Port-au-Prince;—they died ſpeedily, or remained valetudinary for months.

The courſe of the preſent year has furniſhed matter of remark, on the ſubject of preſerving health, or of obviating the ordinary fatal tendency of endemic diſeaſe, in the iſlands of the Weſt Indies. A detachment of Dutch artillery, conſiſting of ninety-ſix men, arrived at Port-au-Prince in the beginning of Auguſt.—The detachment had not experienced ſickneſs during the paſſage from England, ſo that whatever hereafter occurred may with juſtice be attributed to climate. On the night after landing, eight men were brought to the hoſpital, ſeven of them under the firſt attack of fever;—the other had been ill two days, and died in twenty-four hours; the ſeven were attended to immediately, treated with vigorous means, and they recovered ſpeedily.

The fever of St. Domingo having uniformly deſtroyed a great proportion of new comers, foreign

as well as Engliſh, it was recommended to the ſurgeon of this detachment, to employ ſuch modes of preparation, as ſeemed beſt ſuited to prevent the attack, or to mitigate the violence of the expected diſeaſe. Theſe new comers were accordingly bled to ſuch quantity as circumſtances indicated, purged, or otherwiſe evacuated as judged fit, carefully watched by the non-commiſſioned officers, and in general removed to the hoſpital on the firſt appearance of the ſlighteſt febrile indiſpoſition. The principles of the plan recommended in the following pages were held in view, and the firſt part of it at leaſt, was carefully executed.—No loſs, except of the man mentioned above immediately after landing, and of another, early in November, neglected by ſome accident or other, till the third day of the diſeaſe, has occurred hitherto; and though the period of trial may not appear to be ſufficiently long, to warrant the forming of a final concluſion, ſtill the hiſtory of the detachment, as far as it goes, furniſhes a preſumption, that if it be not in the power of the medical art, always, or ordinarily perhaps, to cure fever when actually formed, it is, in ſome meaſure, in its power to prevent, by timely aid, its fatal ravages. In ſupport of this opinion it may not be unimportant to remark, that the maſter, and more than one half of the crew of the ſhip Bangalore, the tranſport which carried the Dutch artillery to St. Domingo, are already dead,—the diſeaſe yellow fever,—the treatment, according

to report, calomel and other forms of mercury,—the prevailing fashion of the times.

The second regiment of the Irish brigade, a corps composed of very heterogeneous materials, possessing little of the outward form of military discipline, and still less of interior economy, arrived at Port-au-Prince about the middle of September. One hundred and thirty men were then in the list of sick, and upwards of thirty had died on the passage from Jamaica. In this list were included a considerable number of individuals, incapable of service, from the infirmities of old age, not fewer than twenty labouring under putrid sores and spreading ulcers of the legs; the remainder were either actually ill, or in a certain progress of recovery from fever.

The fever, which prevailed in the second regiment of the Irish brigade, had much of the external aspect of fever found on board of crouded ships, or infected hospitals; the re-action of the vascular system was feeble; the patient died, withered and dried up like a blasted plant, sometimes of an olive dusky colour, sometimes deeply yellow;—the duration seldom exceeded the eighth day; recovery, when recovery did take place, was gradual; the powers of life emerged by degrees, but the skin remained impervious for some time. Such was the usual progress of the disease, when left to itself; when attended to immediately, or soon after the attack, and treated according to the principles of the plan recommended in this outline, the course was interrupted, and the mortality was trifling.

This corps was diſembarked, in a few days after arrival in the harbour, and ſent to a cantonment in the plain Cul de Sac. The endemic fever, in the form which it uſually aſſumes with ſtrangers, more frequently of the ſecond, than of the firſt form, appeared among men and officers like an epidemic; but, from the attention and deciſion of the ſurgeon, who adopted the principles of the plan recommended hereafter, the loſs was comparatively ſmall.

Circumſtances of ſervice made it neceſſary to remove the corps to the mountains of L'Arcahaye in the beginning of November; the actual ſick were brought to Port-au-Prince in waggons; and they ſeemed, in general, to be benefited by the journey; but the march of the healthy part having been badly conducted, or performed under unfavourable circumſtances, an increaſe of ſickneſs was the conſequence; while ſuch as became ill, deprived at this juncture, by the indiſpoſition of the ſurgeon, of the uſual early attention, did not, in many caſes, appear at the hoſpital before the ſecond or third day of the diſeaſe; of theſe the greater number died, under the ordinary appearances of yellow fever; the others, attended to in time, generally recovered, the conſtitution even ſeldom ſuffering material injury.

The importance of attending to the diſeaſe in the early ſtage was evident in the preſent inſtance;—it is further confirmed by what happened to the officers of this regiment. Theſe ſuffered attacks of fever in the ſame manner as the privates; but as

the moſt of them were ſeen by a medical perſon in the commencement, and treated with vigorous means, no loſs has hitherto occurred; in two of them, fever was in progreſs before decided means were adopted, and life was ſaved with difficulty.

An appearance of ſome curioſity has occurred ſeveral times at Port-au-Prince, in the courſe of the ſummer. Some perſons, under fevers of a continued or obſcurely remitting type, became covered about the period of criſis with watery veſicles or blotches, containing a whey coloured or yellowiſh ſerum: convaleſcence ſeemed to go on, and, in ſome inſtances, was ſo far advanced, that the ſubjects were thought fit to return to duty, but they uſually relapſed unexpectedly, and ſometimes died ſuddenly;—the appearance ſeemed, in ſome manner, to reſemble the deſcription of pemphigus.

St. Marc, November 3d. St. Marc, ſince the firſt arrival of the Engliſh in St. Domingo, one of the moſt deſtructive diſtricts in the iſland, has not materially changed its character during the preſent year. The diſeaſe, which prevails at this place, has, upon the whole, much of the remitting type; bilious ſymptoms are common; coma, oppreſſion of the brain, and general torpor of the moving fibre not unfrequent. This endemic is often ſo ſevere among the inhabitants, particularly in a certain quarter of the town, during the months of July and Auguſt, as to bear the name of epidemic, and ſometimes, though not juſtly, to be conſidered as contagious.—Convaleſcence from the diſeaſe is ſlow, perhaps more

tedious, and leſs complete than at Port-au-Prince ;— a ſickly, withered look, ſimilar to the look of the inhabitants of the ſwampy banks of the large rivers, in the ſouthern ſtates of North America, remains long.

Mole, St. Nicholas, December 5th. The Mole bears the general character of being one of the moſt healthy ſituations in St. Domingo. It is, upon the whole, more ſo than Port-au-Prince or St. Marc ; yet the regiments quartered here have ſuffered in an equal, if not in a greater proportion, during the months of Auguſt, September, October, and particularly of November, than thoſe of the former places.—The weather for ſome time paſt has been more ſultry than in ordinary ſeaſons ; and more rain has of late fallen at the Mole, than for ſeveral years paſt, during a like period. The 56th and 67th regiments compoſe the garriſon of the Mole ; and of theſe the 67th is the moſt ſickly at preſent. The men of this corps are the moſt athletic, the beſt formed, and in the higheſt military order of any in the iſland ; but they often tranſgreſs the bounds of temperance, or fall into irregularities, not eaſily avoided by high ſpirited ſoldiers, precluded from ſervice of enterpriſe, and active exertion in the field. The character of the diſeaſe, which prevailed among them, appears, by report, to have been of a remitting form, during the months of Auguſt, September and October ; towards the end of November, according to actual obſervation, the attack often commenced with coldneſs, like that of an intermittent,

generally of long continuance, but ſeldom of the degree denominated rigor or ſhaking, or followed by marked increaſe of heat, and regular termination by ſweat. On ſome occaſions marks of ſtupor, torpor and oppreſſion were obſervable at the commencement: the firſt train of ſymptoms, active or otherwiſe, paſſed over or abated, but intermiſſions, even remiſſions were obſcure, or difficultly perceived; the ſkin was cool, dry and huſky; or damp, cool and greaſy; the pulſe was ſmall and confined, not frequent in general in point of time, but without re-action, without elaſticity, or alternate contraction and relaxation of effective force; the tongue was ſometimes foul, milk-white and ſlimy, at other times moiſt, clean, and, in ſome inſtances, dry, gloſſy and ſhining; the eye was ſeldom red, inflamed or agitated, often torpid, and without luſtre; headach was ſometimes ſevere, but this was not a conſtant ſymptom;—headach, in ſome caſes, made no part of the complaint; pains of the back and limbs were then ſometimes excruciating; the fleſhy parts were tender of the touch, as if bruiſed; and the joints ſeemed diſlocated or broken; vomiting was common, periodical and ſevere,—the vomited liquor yellow or green; the eye in ſome inſtances became yellow, towards the latter ſtages, but this was not very commonly the caſe; the tongue was then often brown and dry, with marks of a bilious fever, or of a diſeaſe exerting its chief force upon the biliary and myſenteric ſyſtems; the countenance brown and withered,

with agony at ſtomach, and gradual extinction of the vital powers; ſleep was irregular, either altogether wanting, or diſturbed with wanderings and dreams; delirium was not a common occurrence; when it did appear, it generally indicated an approaching change in the mode of action, or ſeemed to take the place of vomiting or purging. In this caſe it was dangerous; in the other, it often appeared at a critical period, or marked a departing torpor and beginning re-action; if the ideas ran in a lively train, the ſign was favourable; if they were indiſtinct, in conſequence of change of place with vomiting or purging, coma and death were frequently the termination; criſis was ſeldom diſtinct and final; the patient emerged gradually, but the commencement of change was generally at the regular period.

Such was the more uſual courſe of the form of fever, prevailing at the Mole in the month of November; yet, in many inſtances, the form was intermitting or remitting, the paroxyſms regular and diſtinct for two or three revolutions; after which, the action of the vaſcular ſyſtem became confined, and loſt energy, the countenance became withered, duſky and dry, or damp and greaſy; and life was ſuppreſſed, by ſlow degrees; at other times,—more frequently on the fifth day than on any other, the aſpect of things changed ſuddenly, torpor, coma, or oppreſſion of the brain took the place of paroxyſms of regular parts, and life often terminated in twelve hours, or in a ſhorter ſpace from the period of change.

It was remarked above that more rain had fallen at the Mole, during the autumn than is cuſtomary in ordinary ſeaſons; and it may be farther obſerved, that the ſoldiers often attributed illneſs to ſleeping in wet clothes. It is known that the preſent ſituation of the Mole does not eaſily admit of general and extenſive plans of exerciſe for troops; and conſequently that the garriſon moſt uſually remains inactive; but the enterpriſe of Lieutenant Colonel Stewart, the commandant, has of late frequently carried out the light company of his regiment upon excurſions; this company in conſequence has experienced little or no ſickneſs, while the grenadiers and battalion, employed only on rare occaſions, have ſuffered much, and, for the moſt part, moſt remarkably after a day of exertion. This fact, which has not eſcaped the notice of the commandant, ſerves to confirm the important opinion, that active and frequent exerciſes or enterpriſe contribute to the preſervation of health, that accidental fatigues are occaſions of diſeaſe.

Grande Anſe, January 18*th*, 1798. The Britiſh troops being diſperſed over a great extent of diſtrict, and cantoned in poſts of different local qualities, a better opportunity, of judging of the advantages and diſadvantages of ſituation, is offered in this dependency, than in the other quarters of the iſland. The chief poſitions on the coaſt, Peſtel, Jeremie and Irois, have been noticed, and the general effects upon health have been briefly ſtated.

Peſtel, as has been obſerved, furniſhes but few

caſes of fever, and of theſe few, ſtill fewer are of a bad kind; bowel complaints occur ſometimes, but they are ſeldom ſevere, or mortal; ſore legs are common;—one-fourth, at leaſt one-fifth part of the detachment is uſually confined on this account.

Jeremie. Diarrhœa is not uncommon at this place; in ſome ſeaſons it has appeared as an epidemic; and mortal dyſentery ſometimes prevails among the inhabitants. The 40th regiment arrived at Jeremie in May laſt, and for ſeveral months ſuffered conſiderably from a bilious diarrhœa,—not in general dangerous, but tedious and obſtinate, if neglected in the commencement. The form of the endemic fever, of ordinary ſeaſons, is remitting or intermitting; and of leſs malignity than at moſt other places on the ſea-coaſt; ſore legs are rare and accidental.

Irois has been, and ſtill is one of the moſt unhealthy ſituations in St. Domingo; the accomodations for troops have been improved lately, and ſome part of the ſwamp has actually been filled up or drained; but the ravage of diſeaſe is ſtill great, during the wet ſeaſon;—it is indeed great at any ſeaſon, among men newly arrived from Europe, or from the interior and mountainous parts of the iſland. The type of the fever is commonly ſingle tertian, anticipating in its progreſs, by long ſtrides, or becoming double at a certain period of the courſe. In ſubjects lately arrived from Europe, or from the interior of the country, the ordinary appearances of yellow fever are not uncommon;—Irois may, in fact, be conſidered as the grave of the Britiſh, in the

Grande Anſe, either by actual mortality happening at the poſt, or by the ſeeds of diſeaſe communicated to thoſe, who have been ordered to the poſt on occaſional duty;—ſore legs occur rarely.

Peſtel, Jeremie, and Irois, may be conſidered as permanent ſtations on the ſea-coaſt; Cayemitte, Petite Riviere, and Ivonet, either immediately upon, or within influence of the ſea-coaſt, have only been occupied occaſionally by detachments of Europeans.

Cayemitte. A ſmall detachment of Britiſh was ſent to this place, in the latter end of March; ſickneſs ſoon laid hold of it; ſeveral died, and the remainder was ſo miſerably diſeaſed, when the removal was effected in the month of May, that it might be ſaid to be loſt to the ſervice.

Petite Riviere, a poſt or plantation, ſituated near the embouchure of a ſmall river of pure and limpid water; the houſe of the plantation is placed upon an eminence; but the valley ſurrounding it, which is of ſome extent, is overgrown with weeds and rubbiſh. Two companies, of the 40th regiment, were ordered to occupy this ſituation in the month of September; theſe companies were then in health, and no material ſickneſs was experienced for near ſix weeks, at the end of which period, diſpoſitions were made to attack Tiberoon, which occaſioned a movement among the troops, quartered in the weſtern diſtrict;—theſe two companies were of the number. The marches were fatiguing, and performed under the diſadvantages of bad roads and

heavy rains. The military object was not accomplished; the troops returned to their posts, and this detachment, from Petite Riviere, to Vincent le Dent, some miles in the interior. Sickness began to show itself immediately upon arrival;—scarcely a man escaped, and several died; the form of disease was concentrated remittent;—the change of place, and the desultory exertion were probably causes of its sudden appearance and uncommon violence.

Ivonet, a post or plantation, situated upon a height of considerable elevation, about two miles in a direct line from the sea-coast. The height is cleared of wood, and the soil is dry; but the space, between the bottom of the height or mountain and the sea, is either swamp or uncultivated luxuriant plain, affording exhalation, carried directly to the summit of the mountain by the current of the ordinary sea breezes. The light company of the 69th regiment, which had been twelve months on the mountains of L'Arcahaye, where it enjoyed perfect health, was ordered to this post about the end of May or beginning of June. Fever soon after arrival made its appearance, and there were few who had escaped an attack before the month of August. The disease was of a remitting type in general; but, in some instances, it appeared with such marks of concentration, as to resemble the yellow fever of Europeans, newly arrived;—the mortality was considerable.

The character of the endemic disease of the West Indies is different in the interior, and on the sea-

coaſt. This difference is ſtrikingly marked, in reviewing the different poſts, eſtabliſhed by the Britiſh, in the interior of the Grande Anſe.

Millet, the only interior poſt in the Weſtern diviſion occupied by Britiſh ſoldiers, is about nine miles in a ſouth-eaſt direction from Irois. It is ſituated upon the ſummit of an inſulated hill, at the conflux of three ſtreams, which form what is called the great river. The hill which is entirely cleared of wood, is very ſteep; the channels of the ſtreams and ravines ſurrounding it are deep, grand, and majeſtic; like the other parts of the weſtern extremity, Millet experiences great falls of rain.—Here fevers and bowel complaints occur occaſionally, but they are upon the whole rare, and hitherto have not been fatal; ſore legs are troubleſome; they ariſe ſpontaneouſly, or originate in accident, but difficultly admit of cure;—one-fourth part of the detachment is uſually confined by them.

The eaſtern boundary of the Britiſh poſſeſſions, in the Grande Anſe, is formed by Peſtel, Camp Deſrivaux, Camp du Centre, and Poſt Raymond;—the prevailing ſtate of health at Peſtel has been noticed.

The *Fort at Deſrivaux*, which is about nine miles interior from Peſtel, is ſituated upon a ridge of high ground, the margin of a valley, about half a mile in breadth. Fevers of the intermitting kind ſometimes appear at this poſt, but they are, upon the whole, rare and rarely ſevere; bowel complaints are more frequent, but they are ſeldom fatal; ſore legs are the chief malady, and they are a very per-

plexing one, the fourth part of the detachment being often confined from this cauſe.

Camp du Centre, about fourteen miles more interior than Deſrivaux, is ſituated in the centre of a coffee plantation, in a bottom of brick mould, encircled by hills, chiefly covered by wood; much rain falls at du Centre, yet the ſituation is, upon the whole, more healthy than that of Deſrivaux; fevers or bowel complaints are rare,—ſcarcely ever fatal; and ſore legs are, perhaps, not altogether ſo frequent, or ſo obſtinate, as at the former place.

Poſt Raymond, about five miles from du Centre, ſituated at the ſummit of the central ridge of mountains, commands a proſpect of the ſea on both ſides of the iſland. In point of health, Raymond is not inferior to the moſt healthy ſituations of Europe; ſickneſs of any form has ſcarcely been ſeen, and even ſore legs, ſo common at all the other interior poſts, are unknown; accidents heal ſpeedily;—at other places, a ſmall ſcratch often feſters, and degenerates into an ulcer, which ultimately affects the bones.

The hiſtory of the forms and degrees of diſeaſe, which prevail at the different poſts in the Grande Anſe, as it is the hiſtory of the whole Iſland of St. Domingo, poſſeſſed by the Britiſh, and perhaps of all the iſlands in the Weſt Indies, is important to the concerns of armies, and of conſequence in the ſcience of medicine. In moſt ſituations on the ſea-coaſt, the character of the endemic is ſtrongly marked; in the wet or unhealthy ſeaſon, the febrile

form of diſeaſe chiefly prevails; in the ſpring and earlier part of ſummer, more particularly under ſlight and accidental rains, diarrhœa is not uncommon,—it is even ſometimes, in a manner, epidemic. In higher ſituations, or on the firſt chain of mountains, intermittents or diarrhœa are frequent in wet weather,—ſore legs are troubleſome at other times. In ſituations ſtill more interior,—on the mountains, or in the valleys lying under the ſecond chain of mountains, intermittents and diarrhœa, though occurring occaſionally, become gradually more rare; ſore legs take their place, and appear actually to be the endemic diſeaſe of that tract of country. In the higheſt ſituations, or on the central ridge, neither fevers, fluxes, nor ſore legs are known, at leaſt they occur ſo ſeldom as not to deſerve notice.

The hiſtory of health, throughout the Iſland of St. Domingo, correſponds more or leſs with the above detail, drawn from actual obſervation in the diſtrict of the Grande Anſe. The character of the endemic fever is ſtrongly marked at Port-au-Prince; from April to December, fever, in one form or other, may be conſidered as the reigning diſeaſe, though diarrhœa occurs not unfrequently, in the earlier parts of ſummer. It ought alſo to be remarked in this place, that diarrhœa, purging, dyſentery or flux are common at all ſeaſons; at an average, the different forms of bowel complaints compoſe one-third part of all the ſick in hoſpitals, particularly in the latter part of the year; but the

diarrhœa alluded to at preſent, is diarrhœa of original form,—the others are, in reality, the ſequel of fever, the effect of local derangement in one or other of the abdominal viſcera, or in the alimentary canal itſelf, in conſequence of preceding illneſs.—Sore legs are rare at Port-au-Prince, and ſurgical operations ſucceed well. The form of diſeaſe, in the plain Cul de Sac, and in the plain of L'Arcahaye, follows ſimilar laws. On the ſummit of the mountain, which covers Port-au-Prince on the ſouth, and among the mountains of L'Arcahaye, intermittent fever, but more eſpecially diarrhœa, is not unfrequent during the greater rains;—ſore legs are troubleſome at other times.

St. Marc is placed under circumſtances, very ſimilar to thoſe of Port-au-Prince; the remitting fever is endemic; diarrhœa ſometimes takes its place; diarrhœa, dyſentery, and diſeaſes of the viſcera frequently are its conſequences;—ſore legs are uncommon.

Mole. Very little rain falls at the Mole in ordinary ſeaſons; no actual ſwamp is near it; and little more than the very ſcite of the town is level ground. The character of the endemic however is more varied, than in moſt other parts of the iſland; diarrhœa occurs ſometimes epidemically; intermitting or remitting fevers prevail in the autumnal months, and beginning of winter; continued fevers, ſometimes with ſtrong, ſometimes with obſcure marks of vaſcular excitement, are frequent, eſpecially during dry and hot weather, and among ſubjects newly

arrived from Europe; ſore legs appear on various occaſions; and ſurgical operations have not ordinarily ſucceeded well.

It may not be improper to mention curſorily in this place, as the information is from good authority, that the form and degree of endemic diſeaſe follows nearly the ſame rule in Jamaica, as in St. Domingo. The character of endemic fever is ſtrongly marked at Spaniſh Town and Kingſton;—diarrhœa has its ſeaſon, but ſore legs are of rare appearance. At Stoney Hill, intermittents and diarrhœa occur ſometimes, but the fever is ſeldom of a dangerous kind;—ſore legs are frequent, and of difficult cure. At Maroon Town fevers and fluxes are not often ſeen; but ſore legs are not uncommon.—It may be preſumed, though not yet aſcertained by trial, that in ſtill higher ſituations, ſickneſs and ſore legs will be as little known, as they are on the central ridge of the mountains of St. Domingo.

It is remarked above, that different forms of diſeaſe, as ſore legs, diarrhœa, and fever are, in a more eſpecial manner, peculiar to different diſtricts or tracts of country; there is alſo ſome variation of the form in the ſame diſtrict, according to the different ſeaſons of the year; ſore legs, for inſtance, are more common in the dry and healthy months; diarrhœa in ſpring, and the earlier part of ſummer; fever in the latter months of ſummer, and in autumn; and, in more concentrated form, in ſome months of autumn than in others. In October and November, attacks are not more frequent, than they are in the

preceding months, but they are, upon the whole, more malignant, more inſidious and more unexpectedly fatal; the diſpoſition to coma, or oppreſſion of the brain, is more common, as alſo a diſpoſition to more various combinations of affection of what is called the nervous ſyſtem; for example, it happened on many occaſions, in the courſe of laſt autumn, that the patient became cold, as if actually dead, that the pulſe ceaſed to beat at the wriſt; nay that obvious appearances indicated, that the current of life was about to ſtop; yet at a certain period, heat and circulation returned, and life was often eventually ſaved. In ſuch caſes, the breathing was uſually eaſy, the countenance ſerene, the eye clear, the intellect unimpaired, with other ſigns which gave hopes that the coldneſs and ſuppreſſion of pulſe did not proceed from a mortal cauſe.

It appears from a hiſtory of the relative ſtates of health, at the different poſts in St. Domingo, that the endemic diſeaſe in that iſland, and perhaps in all the iſlands of the Weſt Indies is fever, diarrhœa or flux, ſore legs or ſpreading ulcers of a particular kind. Theſe complaints moreover appear ſo connected with each other, as to afford a preſumption, that they depend fundamentally upon the ſame general cauſe, different in degree of force, or differently modified according to circumſtances of ſeaſon, place and ſituation. The connection alluded to is obvious in the endemic, and a ſimilar connection is obſervable under the action of the contagion of jails, hoſpitals, crouded barracks, and crouded ſhips. Itch, or ſcor-

butic eruptions, ſore legs or ulcers appear often in ſhips, or in barracks, ill ventilated, and too much crouded; ſuch appearances denote a latent ſeed of contagion, and, in reality, often precede, or accompany contagious fever. Diarrhœa makes another gradation of the action of a febrile cauſe;—the cauſes which influence it are often evident; the tranſition, from this form to proper fever, is ſometimes rapid and complete; ſometimes diarrhœa and fever exiſt together; and ſometimes they alternate or change places;—the healing of an ulcer is alſo frequently followed by a fatal flux or dangerous fever. It appears however upon the whole, that if the cauſe be naturally ſtrong and concentrated, or if it meet with certain aptitudes in the habit of the individual, the febrile form prevails; if the general cauſe be weak, if it meet with local weakneſſes, or peculiar diſpoſitions in the ſubject, the action aſſumes a different aſpect. Dyſentery, flux or purging, a frequent effect of endemic fever, is alſo a common, and often a fatal conſequence of that ariſing from contagion; it depends, in the ſame manner, upon local affections of the myſenteric ſyſtem and alimentary canal, the effect of the action of preceding febrile diſeaſe.

It appears from a peruſal of hiſtory, that nearly all the iſlands of the Weſt Indies are under ſimilar laws, with regard to health. In towns and on plains, near the ſea-coaſts, European ſoldiers ſicken and die; in the mountainous and interior parts of the country, health ſuffers little, and mortality is inconſiderable. It appears alſo,—at leaſt ordinary obſervation forms

the concluſion, that one general principle of defence is applicable to all, or nearly to all. Thus, the interior, for the moſt part, preſents a citadel, which may be conſidered as impregnable, if defended by troops active and organized; the ſea-coaſts are extenſive, abound with bays and are open to invaſion; the ſhores of Jamaica, for inſtance, are ſo extenſive, and ſo acceſſible, that the army of England, diſperſed in poſts, would ſcarcely be ſufficient for their defence, againſt a reſpectable attack. A landing effected, the firſt views are directed to cut off communication; this object accompliſhed, the defences of the ſea-coaſt fall in detail. But, if, inſtead of numerous poſts on the ſea-coaſt, the principal protection of an iſland of the Weſt Indies, be truſted to a work of regular fortification, covering the capital, the hiſtory of every war furniſhes proof, that works of art, however regular and complete, fall almoſt without exception, if an attack be made with ſkill, and proſecuted with perſeverance;—the iſland of courſe follows the fate of the fortification. On the contrary, if the military magazines be placed in the citadels of the interior, the regular troops ſo diſpoſed, as to ſecure communication, and means of operating in concert, the inhabitants properly trained in the uſe of arms, and inſtructed to aſſemble at certain points, on given ſignals, the forces thus collected, and moving from a centre, would ſeldom fail to gain the point of threatened attack before a landing could be effected. It is probable, that the deſigns of an enemy would thus be often fruſtrated in the

attempt,—ſhould however a landing be actually effected, the cauſes of embarraſſment would ſtill be great,—without works to ſecure magazines and cover operations, open to conſtant annoyance, in a difficult and almoſt impenetrable country, diſcomfiture and retreat it is preſumed would be the iſſue. A town might be deſtroyed, or a plantation ravaged, but the general ſafety of the country would not be in danger.—In fact, the greater number of the iſlands of the Weſt Indies appear to be impregnable, if defended according to the principle alluded to, by troops active and energetic, aided by inhabitants zealous in the defence of their independence; on the other plan, there are few of them, perhaps, that preſent much difficulty of conqueſt.

The iſlands of the Weſt Indies are expoſed to the invaſion of foreign enemies; they are alſo expoſed to another inconvenience,—the inſurrection of ſlaves. Doubts may ariſe, of the propriety of truſting the chief defences of the iſlands againſt invaſion, to troops and inhabitants in maſs, pouring down upon the ſhores from the faſtneſſes of the country; no doubt will ariſe, of the propriety of cantoning the military force in the interior, as the beſt ſecurity againſt revolt: revolt is not likely to happen in towns, where white men are numerous and watchful; if, by chance, it ariſes upon eſtates in the plain, it will be ſpeedily cruſhed by a force deſcending from the mountains; if it originates among the mountains, or if the inſurgents have the means of refuge to the mountains, it muſt always be formidable.

It is ſuggeſted above, that alteration, in the principle of diſpoſing of troops for the defences of the Weſt Indian poſſeſſions, might be adopted with advantage; alteration, in the principle of arranging forces and directing operations, in thoſe iſlands which are the ſeat of actual war, ſeems no leſs neceſſary. It is mentioned with regret, that the features of a country as indicating health, have ſeldom been regarded in diſpoſing of troops; it is not even obvious to vulgar apprehenſion, that military features always command the choice of cantonments or military poſts. The chief European force in St. Domingo, for inſtance, is allotted to towns and fortreſſes on the ſea-coaſts. The poſſeſſion of a town or niche of ſea-coaſt requires the aid of a very warm imagination to be converted into the conqueſt of a country. To thoſe acquainted with the climate, the extent and internal reſources of St. Domingo, and who have ſome knowledge of the qualities of thoſe by whom it is at preſent occupied, ſuch poſſeſſion will not perhaps be eſteemed a ſtep of much progreſs. In the revolution of one ſeaſon, two-thirds at leaſt of the European garriſon will periſh by diſeaſe; while the poſſeſſion of a ſea-port, by which communication with foreign nations is cut off, will not much annoy a people, who know to find their ſubſiſtence, and to ſupply their chief wants from the productions of the ſoil. But though the natural wants of negroes be eaſily ſupplied, and though experience has proved that they will not barter their independence for a Madras handkerchief, or an-

ear-ring, ſtill they are by diſpoſition ſo indolent, ſo unenergetic in action, and ſo divided among themſelves, that it is probable, nay more than probable, that, by a comprehenſive and ſyſtematic plan of arrangement, the conqueſt of St. Domingo might have been effected;—it is proved that by the one hitherto purſued, conqueſt, or rather preſerving of conqueſt, is a viſionary project.

It appears in the medical hiſtory of the preſent war, that armies in Europe have been nearly deſtroyed by artificial diſeaſe,—by contagious fever, a diſeaſe, which never ought to be ſeen among troops, and which will not long exiſt, where principles of ſound ſcience are known and rigidly applied in practice. In the Weſt Indies mortality has been great, and though the endemic be leſs avoidable than the contagious fever, yet it is evident, from a detail of the ſtate of health in the different poſitions in St. Domingo, that the great loſs has been chiefly owing to defects of arrangement,—to an unjudicious diſpoſition of the European forces. It might reaſonably have been expected that the various informations, communicated on different occaſions, reſpecting the preſervation of health, would have produced, before this time, a diſpoſition of military forces, different from that which exiſts: For though coloniſts and merchants, whoſe object is gain and whoſe views, in forming ſettlements, are chiefly directed to facilities of trade, may be allowed to build towns and ſtorehouſes in bays, creeks, and on the muddy banks of rivers; yet ſtateſ-

men, governors and leaders of armies, who are ſuppoſed to poſſeſs the general principles of ſcience, and who are expected to embrace, in their arrangements, the intereſts and concerns of the nation at large, will not eaſily vindicate the practice of ſtationing troops on the borders of ſwamps, ſwampy rivers, or on ſcorching plains deſtructive of health, much leſs in towns, near ſwamps and ſea-coaſts deſtructive both of health and morals, unleſs where it is found to be impoſſible, that the purpoſes of ſervice can be anſwered by other means. To determine this queſtion requires the inveſtigation of unprejudiced and capable men; the author does not enter upon the ſubject; he is aware that to offer political counſels, or to furniſh military ſuggeſtions may be deemed preſumptuous or impertinent; but information, on the ſubject of health, is the duty of his ſtation, and convinced that health has ſuffered, and ſtill ſuffers from inattention and defects of arrangement, he could not in juſtice to that duty withhold a few remarks.

The remarks offered in this tract, which are not ſtrictly profeſſional, may be deemed foreign or officious; but one thing is clear, that on whatever principle the defence of the iſlands be conducted, whether by forming the interior mountains into citadels, or by erecting fortifications on the moſt important poſitions on the plains, the queſtion of preſerving the health of the European ſoldier belongs to the ſubject, and requires minute and accurate attention. Healthy and unhealthy ſituations are known

to the inhabitants of a country by experience, they are known to medical men upon ſurer grounds, by actual examination and a proper eſtimate of cauſes; thus the means of attaining information on the ſubject are eaſy and ſure, but they are not ordinarily employed.—The neglect has been grieveouſly felt, and human life has on numerous occaſions been laviſhly ſacrificed to temporary accommodations. In order to obviate this evil,—this continuance in error, it is propoſed, that, previous to the erection of forts and barracks or fixing the cantonment of troops, a profeſſional ſurvey be made by a committee of military and medical officers;—that the advantages and diſadvantages of the ſituations be fairly and fully eſtimated, and ſtated to the ruling power. From a ſurvey of this nature it is ſcarcely poſſible, but that ſuch lights will ariſe, as may enable thoſe intruſted with the direction of affairs to combine defence and convenience, with proper regards to the preſervation of health; yet this meaſure, plain and ſimple as it is, does not appear ever to have been adopted.—In moſt of the iſlands, the ſituations of forts and barracks are unfavourable to health;—where otherwiſe, accident has had more ſhare in the buſineſs than deſign.

CHAPTER III.

Remote Cauſes of Fever.

It is perhaps no longer diſputed, that thoſe derangements of the human frame denominated fevers, whether endemic or contagious, owe their origin to two ſources only, viz. one natural and generally diffuſed over the ſurface of the globe, the other artificial and inſulated:—it is difficult, in many caſes, to define their limits preciſely, but the matter is of ſuch importance as to demand an attempt.

The firſt,—a vegeto-animal ſource, uſually called *marſh* exhalation, occupies the wide extended boſom of the earth; it is generally diffuſed in the atmoſphere, abounds more in ſome ſituations than in others, and is rendered more or leſs active by a great variety of cauſes,—cauſes, ſometimes of regular connexion in the ſyſtem of the world, ſometimes apparently of accidental occurrence,—at one time obvious to the ſenſes, at another obſcurely perceived, or altogether imperceptible. This cauſe produces diſeaſe, and frequently ſuch a derangement of the ſyſtem as is incompatible with life; but it is loſt in its firſt operation.

The ſecond, deriving from an animal ſource, more expreſsly from an altered condition of the living human body, is confined in its ſphere of action, communicated only by contact, by near approach, or by a medium connected with the ſource. This cauſe produces diſeaſe, and under that diſeaſe ſuch

a derangement of the ſyſtem ariſes, as begets a multiplication of the original cauſe, which extending itſelf to a certain diſtance from the ſource propagates ſimilar diſeaſe through a ſeries of ſubjects.

The firſt ſource, the exhaling ſurface of the earth, affords the cauſe as is commonly known of the numerous forms and degrees of endemic fevers. Theſe are obſerved to prevail in certain climates, in certain ſeaſons, and in certain local ſituations of the ſame climate more than in others; they are upon the whole more frequent in tropical and warm countries, than in high latitudes and frozen regions; they are more frequent in ſpring, and particularly in autumn, than during the other periods of the year; and they are uniformly more frequent on ſea-coaſts and plains, near ſwamps and rivers than in the interior and mountainous parts of a country. But beſides that theſe endemics are generally periodical, and in ſome manner connected with the cauſes which influence the vegetation of plants, they ſometimes alſo appear irregularly and epidemically,—at one time accompanied with extraordinary, but viſible cauſes, while at other times nothing extraordinary is perceptible; they further affect ſtrangers more generally and more violently than the natives of the diſtrict, and men under conſtant and active labour leſs than thoſe in a ſtate of reſt,—or after deſultory exertion.

The ſource of this cauſe is known, and many of the laws which influence its action are clearly aſcertained, but little or no progreſs has as yet been made in the diſcovery of its intimate nature and

properties. Its preſence is often connected with ſomething offenſive to the ſenſes,—to the ſmell, and perhaps even to the taſte. A certain degree of ſalivation, naufea, ſickneſs and headach are often occaſioned by the exhalations of a ſwamp, or by the air of an infected apartment, but diſtinct febrile action is not ordinarily the immediate conſequence. To produce fever a ſpace of time is required, different according to circumſtances, but generally of ſuch duration as to prove, that the febrile operation is not the direct effect of a diſagreeable impreſſion on the external ſenſes. In a given time after expoſure to the known ſource of the diſeaſe, more frequently at the expiration of a fortnight than any other period, the healthy action of the human body becomes ſuſpended, impeded, or diſturbed in different degrees; action of a new form ariſes, generally or locally exerted according to circumſtances; this continues for a certain and ſtated time, terminates completely or partially, and health returns in a correſponding proportion; it however often happens, that the immediate action of the cauſe, or the effects conſequent to that action, ſpeedily and irrecoverably derange the organization of the frame, ſo that death enſues.

It will perhaps be doubted, for it does not admit of poſitive proof, that the cauſe of fever is fundamentally the ſame with the cauſe or principle of vegetation; but if not the ſame, it is evident there ſubſiſts a ſtrong connexion between them. Endemic fever is almoſt uniformly prevalent, where vege-

tation is luxuriant, at leaſt, where the requiſites of a luxuriant vegetation greatly abound. In this manner, as vegetation is more luxuriant in tropical and warm climates than in temperate and frozen regions, ſo notoriouſly is endemic fever. Vegetation is more luxuriant, or the cauſes of vegetation more generally abound in valleys, plains, near the coaſts of the ſea, near the ſwampy and oozy banks and mouths of rivers, than on hills and mountains, in inland countries, and in ſoils, light and dry; ſo does endemic fever. But though the matter and active principle of vegetation be generally moſt abundant in the ſituations alluded to, yet ſuch ſituations are not uniformly covered with the moſt luxuriant and healthy vegetable productions;—ſomething depends upon adventitious circumſtances. Plants, as well as animals, are ſeen to ſicken and die from exceſs of nouriſhment, and, in conſequence of this perhaps it is, that exceſſively rich and ſwampy grounds are often bare, or poſſeſs only a ſtunted vegetation. In ſuch caſes the neighbourhood is unhealthy; for it would appear, that the materials of vegetation abounding in exceſs, acted upon by a powerful cauſe give out a principle, which, not being expended in the growth and nouriſhment of plants, is diffuſed to a certain extent in the atmoſphere, occaſioning a derangement of ſuch bodies as come within the ſphere of its action. To this exceſs of an unappropriated vegetable principle, may perhaps be imputed the increaſed degrees of unhealthineſs, ſo often obſerved in the neighbour-

hood of ſwamps, newly cleared of their woods, as on a contrary cauſe, may be underſtood the explanation of a fact frequently noticed, that ſwamps and luxuriant ſoils loſe their noxious qualities, when planted with ſugar cane and other productions which have the capacity of receiving much nouriſhment.

The riſe and progreſs of endemic fever are obviouſly connected with the different periods of the ſeaſon, and this connexion may be ſuppoſed to afford ſome illuſtration of the opinion juſt now mentioned. In ſpring, the principle of vegetation is extricated in great quantity, while the capacities of plants are ſtill ſmall; an exceſs is conſequently generated, and this exceſs extends its influence to a certain diſtance around. In ſummer, the extrication of the principle ſtill increaſes, but the capacities of plants being extended in a greater proportion, the means are more adequate, and the exceſs is actually leſs. In autumn, the growth of plants being completed, while cauſes ſtill continue to produce a great extrication of the principle of vegetation, the exceſs abounds and occupies a wider circle.—Upon this principle alſo, may perhaps be underſtood the occaſional unhealthineſs of lands dry and rocky, bare and barren, or that produce only ſhrubs and trees of ſtunted growth. The Mole, St. Nicholas, in St. Domingo, affords an example of this. The Mole cannot be ſaid to be a healthy ſituation, yet the ſoil is not rich, nor is there ſwamp or ſtagnant water near it. The breezes from the ſea are, for the moſt part, regular and ſtrong, and there is

upon the whole very little rain—the reputed cauſe of fever; but the ſurrounding hills have a ſteril aſpect, and produce only a few ſtunted ſhrubs and plants of low growth: hence perhaps it is, that the principle of vegetation, extricated, at certain periods, in greater than uſual quantity, abounds in exceſs, and diffuſed in the air to a certain extent affects the health of man.

The regular riſe, progreſs and decline of endemic fever, as connected with the periods of ſeaſon, ſeem to be explained by the ſuppoſition of an exceſs of the principle of vegetation, extricated by known cauſes from known and viſible materials; but it ſometimes happens, that fever becomes epidemic in a country, in a diſtrict, or in a particular ſpot, out of ſeaſon and without the viſible and obvious cauſes uſually connected with the riſe, progreſs, and decline of ſuch diſeaſes. It is to be lamented that accurate obſervations, on the ſtate of the vegetable kingdom, have not been made on ſuch occaſions; but it is probable, that if the ſtate of things could be exactly known, the capacities of vegetable productions would be found to be preternaturally diminiſhed, at ſuch periods; or that the extrication of the vegetable principle was then increaſed in an extraordinary degree from general or accidental cauſes.

It has thus been obſerved, that a cauſe, originating from a vegeto-animal ſource of materials, occaſions a derangement of health, denominated fever; but it has alſo been obſerved, that this cauſe is loſt

or changed in its firſt operation. It often rapidly deſtroys life; but it begets no proceſs in the human ſyſtem by which it propagates itſelf. In ſhort, endemic fever may be, and often is, epidemic; but it is not contagious, the individual requiring, in all caſes, to be approached to the original ſource before infection. Common obſervation allows this to be generally true, accurate obſervation would perhaps prove it to be univerſally ſo; for it ſeems to depend upon a general law impreſſed upon matter by the Creator of the univerſe. Bounds are ſet to the propagation of animals of a different genus;—the neutral does not multiply: bounds ſeem alſo to be ſet to the propagation of diſeaſe, the cauſe of which has proceeded from heterogeneous materials. Thus, the various vegetable and dead animal matters, which cover the face of the earth, give out, in decompoſition, a neutral compound, the contact of which diſorders the uſual laws of human health, perhaps deſtroys life, but in the mean time occaſions no derangement of the ſyſtem, which originates the production of a ſimilar cauſe. This fact is certain, and it is conſiſtent with the infinite wiſdom of the Creator; for, as the ſources of endemic fevers are common to the ſurface of the globe, had the diſeaſes, ariſing from theſe ſources, been capable of multiplying cauſes, endued with the quality of producing ſimilar diſeaſes, the world muſt ſoon have become an hoſpital or a deſert.

The ſource of endemic fever is a natural one,—common to the whole earth; the ſource of conta-

gious fever is artificial, produced by arrangements which take place among men in certain ſtates of ſociety. The cauſe, and conſequently the diſeaſe, is found in large, particularly in manufacturing cities, more eſpecially among claſſes of men confined to ſedentary employments, ſlothful and diſſipated in habits, oppreſſed with poverty, clothed in rags, confined and crouded in their apartments, and ſuffering from want of fuel. It is common in jails where men are crouded together, deprived of the benefit of pure air, ſuffering hardſhips of body with various anxieties and afflictions of mind. It is, on the the ſame account, frequent in work-houſes, or poor-houſes. It ſometimes originates, but is oftener tranſplanted to hoſpitals, where it ſpreads with rapid growth. It appears on ſome, though on rare occaſions in the country among the families of poor cottagers. It is not peculiar to ſeaſon or to climate, but it appears oftener in winter than in ſummer, and in temperate than in hot countries; yet, as it depends every where upon adventitious and artificial cauſes, it ſometimes commits ravages in ſummer, and it has even appeared in the torrid zone.

Such are the ſources in which this diſeaſe originates, and the ſituations in which it is moſt frequently found. Artificial conſtraint and confinement in narrow ſpace, by inducing a new proceſs of ſecretion in the living ſyſtem, ſeem to be the leading inſtruments in generating the cauſe. The organization of the human body is proved to be ſuch, that

it does not preſerve a healthy action, unleſs under pure and free air; nor does it poſſeſs vigour, unleſs under frequent change of place, and active exerciſes, calling forth the exertions of the moving powers. It indeed appears, that the acceſſion of pure air, and the active employment of the limbs or powers of motion, are the principles given by the Author of nature to preſerve the health of the animal ſyſtem; for whenever, the human body becomes deprived of theſe eſſentials, its health languiſhes, and its vigour decays; nay, the actions, which ſupport life, are then not only languid, but they become diſeaſed or fall into unnatural movements; in conſequence of which, the ordinary ſecretions are ſo changed, that, though the actual exiſtence of fever be not apparent, ſomething noxious ſeems to eſcape from the ſyſtem, which, to a certain extent from its ſource, affects the health of others. In this manner it has often been obſerved, that perſons from jails, work-houſes, and other places of artificial confinement, though not at the time, and what is ſtill more remarkable, though not obſerved at any period to have laboured under formal diſeaſe, carry in themſelves or in their clothes, cauſes which occaſion fever, in its moſt formidable aſpect, to thoſe who approach near to them. This ſilent as it were, and gradually changed ſecretion is ſometimes found among large bodies of men, whoſe atmoſphere proves certainly noxious to the irritable habits of full health, but affects in a ſmaller, if in any degree, thoſe ſituated ſimilarly with themſelves. It is further to be obſerved, that the

cauſe thus generated, ſpeedily produces a fever in the body of a healthy man; and that the fever ſo produced is accompanied with ſuch alterations in the ſecretions of the ſyſtem, as to generate a cauſe, occaſioning ſimilar diſeaſe, through an endleſs variety of ſubjects. This is a curious and an important fact. The fever, which owes its origin to certain connexions with vegetable and dead animal matter, ſhows no diſpoſition to propagate itſelf; the fever, which ariſes from a connexion with the living human body, in a diſeaſed ſtate, multiplies with great activity; frequent ablutions, change of place, and change of clothing, under a warm and freely circulating air, diſſipate the cauſe, but do not change the nature of the diſeaſe. A fever, originating from a contagious ſource, preſerves the quality of contagion as long as it exiſts, though often prevented by management from ſpreading its influence to a wide extent.

The ſphere of action of the cauſe of contagious fever is not extenſive, but the extent to which it is capable of being diffuſed from its ſource can not be preciſely known; perhaps it is not uniformly the ſame in all caſes, probably depending upon original degrees of force, as on a variety of adventitious cauſes. It is condenſed, or rendered more powerful by ſtates of the air connected with cold and moiſture; it is diſſipated and weakened by the oppoſite. It is not extinguiſhed by intenſe degrees of cold; but if adhering to the walls of apartments, or lodged upon clothes, it requires heat and moiſture

before it assumes a state of activity. It is more powerful in its condensed, than in its recent and diffused state; and consequently more noxious as deposited on clothes and bedding, than as directly proceeding from the living body.

CHAPTER IV.

SECT I.

Cases of Contagious Fever.

FEVERS, though arising from one cause, and affecting subjects living under the same air and same regimen, seldom appear in any two instances exactly alike. There is a shade of variety in almost every seperate case, though the general mode of action may hinge upon the same principle. These varieties appear in single histories; for general description embraces no more than what is most common, classed under general divisions, and representing, in the clearest possible order, the more usual combinations, successions and changes of appearances, during the different periods of the course.—A few cases are selected in this place, in order to give a more distinct view of the disease as it actually appears among individuals: —from a greater number of such, the general history which follows has been formed.

March 2d, 1794.—*Sergeant B——n*, a man aged thirty years, of a muscular form and florid complexion, was attacked in the morning, with headach

uncommonly ſevere, with ſevere pains of the limbs and joints, general diſtreſs of feeling and conſiderable commotion of the vaſcular ſyſtem. *3d*, The violence of the ſymptoms is increaſed; the countenance is grim and cloudy; the tongue ſlimy and white; the pulſe irregular and quick; the ſkin hot and dry; the reſpiration heavy and oppreſſed with anxiety, reſtleſſneſs and apprehenſion of the event.—Bliſters, applied to the forehead and temples, have relieved the headach in ſome degree; calomel with James's powder has opened the bowels,—but the ſkin remains dry. *4th*, The ſymptoms do not abate; the headach is ſevere, with a ſtaring wildneſs of the eyes, delirium, ſtartings, tremors and convulſive agitations; the reſpiration is oppreſſed, and the countenance is overcaſt. Bliſters were applied to the head, cheſt and neck; bark with ſnakeroot, camphire with James's powder and opium, in large doſes, were often repeated; fomentations of warm water to the extremities;—waſhing the reſt of the body in water from the pump was frequently employed. *5th*, Somewhat relieved; the ſkin leſs hot and ſofter,—the warmth more natural; delirium, headach and oppreſſion of the cheſt are more moderate, but ſtill exiſt, and, in ſome degree, alternate with each other. *6th*, Things are more promiſing; the pulſe opens and expands, the ſtroke is energetic and regular in time and force; the ſkin is ſoft,—the body open. *7th*, Appearances ſtill improve, though there is as yet no criſis. Some affection of the cheſt and head ſtill remain, and ſtill ſeem to alternate.

8*th*, Signs of criſis approach. 9*th*, Criſis decided. —This man recovered; he did not ſuffer a relapſe in form, but for ſix weeks he had at intervals ſtrange and uncommon ſymptoms, and at one time ſymptoms, which gave apprehenſion of conſumption.—The diſeaſe was formed before a remedy was applied.

April 23*d*, 1795. *B——l*, a ſtout and healthy man, employed as an attendant on the ſick in the hoſpital at Dorum, ſeized ſuddenly with fever of uncommon violence, with headach intenſely ſevere, ſpaſmodic and convulſive twitchings frequent and alarming; the heat is cauſtic and pungent; the pulſe quick, irregular and frequent; anxiety and uneaſineſs are diſtreſſing; breathing is deep and heavy, with frequent ſighing;—aſpect clouded and grim.—He was vomited, purged and bliſtered very ſoon after the attack;—Dover's powder was given, in repeated doſes, with the intention of exciting perſpiration. 26*th*,—The ſymptoms deſcribed above are aggravated in degree, and are in reality of uncommon alarm; the breathing is heavy and oppreſſed; the intellect diſordered; the eye turgid and red; the countenance dark and grim; the ſkin dry; the heat great and pungent, with ſtartings, tremors and actual convulſive motions recurring frequently.—The danger of the caſe appeared to be great;—an attempt was made to obviate it, by exciting the energy of the ſyſtem to complete re-action. In this view a powder compoſed of ſalt of hartſhorn, antimonial powder, opium, ſnakeroot and valerian

in large quantity, was adminiſtered every two hours, with half a gill of Port wine or a glaſs of brandy; bliſters were applied to different parts of the body; the extremities were fomented with flannel wrung out of hot water; the reſt of the body was waſhed with water from the ſpring. The end propoſed, —a general perſpiration, was effected within a few hours; it was ſupported for ſome time; the ſymptoms abated, and health was ſpeedily and finally eſtabliſhed without relapſe.

March 6th, 1796. *Cr—d*, wardmaſter in an hoſpital ſhip, attacked on the 4th with ſymptoms uſual in fever,—horror, headach, confuſed and muddy eye, nauſea, white tongue and frequent pulſe. An emetic was given immediately; which operating well, was followed by ten grains of calomel, purged off by the help of Glauber's ſalts. The head was ſhaved and bliſtered; a bliſter was alſo applied to the nape of the neck; the calomel was repeated:—in conſequence of the bliſters the headach was relieved; the other ſymptoms were alſo mitigated. *7th*, Paſſed a reſtleſs night; the ſkin hot; the pulſe quick; the tongue foul, but moiſt:—the calomel repeated with antimonial powder. *8th*, He was bled freely; the headach was inſtantly relieved, but the ſkin is ſtill hot, the pulſe ſmall and quick;—body coſtive:—calomel and antimonial powder repeated. *9th*, The body is opened; the headach has not returned, but the ſkin is ſtill hot, and the pulſe quick:—calomel and antimonial powder repeated. *10th*, The pulſe open, and expanſile;—

no return of headach; the tongue becoming clean on the edges; the ſkin ſoft and moiſt;—marks of criſis evident. 11*th*, Sound ſleep. 12*th*, Skin open and free. 13*th*, Recovered—no return of fever. The cauſe of diſeaſe might be ſuppoſed to have been very concentrated, as the young man was almoſt conſtantly between decks among the ſick;—the ſymptoms were rather violent, but the fibre ſeemed to retain its irritability throughout;—the period of criſis was regular, and the marks of criſis diſtinct.

May 10*th*, 1794. *C—ns*, a grenadier of large ſize and groſs habit, in the regimental hoſpital of the Buff for ſome weeks, under cure of a ſore on he leg. The ſore was healed: on the eve of being diſmiſſed he was ſuddenly attacked with fever:—having no duty to perform, he made no complaint immediately, ſo that the diſeaſe had advanced to the third day before it was known that he was indiſpoſed. The pulſe was then quick and frequent; the headach uncommonly diſtreſſing, with much thirſt and a moſt ardent heat; the ſkin was dry, and ſo tender of the touch that graſping the arms or legs with force, cauſed him to call out; to this was added a certain lividneſs of the countenance,—and even ſome marbledneſs of ſkin, with great reſtleſſneſs, uneaſineſs and want of ſleep. Laxatives and ſudorifics,—antimonials with calomel, camphire and opium, &c. were employed freely, but without benefit.—On the morning of the 6*th*, the pulſe was obſerved to have loſt force and energy; it was ſmall,

frequent and contracted; the heat of the ſkin was below natural, but the ſkin was ſtill tender of the touch; the eye and countenance were heavy and inanimate; the intellect was not clear. Wine was given in large quantity, but the coldneſs of ſkin increaſed; the intellect became more and more confuſed; the pulſe ſeemed to retire gradually, and the period of total failure did not appear to be diſtant. In this ſituation, a large glaſs of gin, with twenty grains of ſalt of hartſhorn, a drachm of bark, ten grains of ſnakeroot and one of opium, was given every two hours or oftener; bliſters were applied to different parts of the body, and waſhing with cold ſalt water was repeated ſeveral times during the day. In conſequence of perſeverance in this plan the pulſe became ſtrong, full and open; the heat returned and even exceeded natural; the countenance reſumed animation; the motions of the eye became lively; and though ſpaſms and ſtartings ſtill continued, they were at longer intervals, and otherwiſe indicated increaſe of vigour. During the *7th*, *8th*, and *9th*, matters improved much; the intellect was clear; the eye and countenance animated and lively; the pulſe ſtrong, full and expanding; the ſkin warm, but ſtill dry; evacuations regular. *10th*, and *11th*, No progreſs; the countenance, on the contrary, leſs animated; the motions of the eye more languid, the twitchings leſs frequent indeed, but alſo leſs powerful; upon the whole ſigns of diminiſhing energy evident. *12th*, He died ſuddenly, in the

act of swallowing, without any material change having preceded the fatal convulsion.

The first period of this disease was marked by ardent, pungent heat, by great restlessness and distressing headach. These symptoms subsided about the *6th*; and a gradual collapse appeared to be taking place: Stimulating powers quickened the tide of circulation, restored the heat, and apparently the energy of the system; but the effects were not completed, probably owing to neglects or defect in management.

April 15*th*, 1795. *D——d*, an officer, who was on duty at Dorum for the space of ten days, and whose commendable zeal and humanity led him frequently into the barns or hospitals among the sick, was attacked, soon after his return to Bremenlehe, in a sudden manner with giddiness, dimness of sight, followed by headach, horror and other usual symptoms of fever. During the first period, or first seven days, the more prominent features of the disease were anxiety, a certain undescribable distress of feeling, irregular pains, and spasms in different parts of the body, a disposition to sigh frequently, with a sensation of stricture on the chest, uneasiness at stomach, disorder, or unusual irritability of the alimentary canal, the tongue white and foul, the aspect grim and clouded, the skin dry, the heat pungent but not intense, or great in degree, the pulse frequent and quick. On the *6th* a moderate dose of calomel, with some grains of James's powder, procured a dozen evacuations; and,

matters not bearing a very promiſing aſpect, bliſters were applied to the neck and other parts. On the *7th*/he ſeemed paralized or motionleſs for ſome hours, though he retained his recollection. Next day the aſpect of things was changed, inſtead of anxiety and reſtleſſneſs, pains, ſpaſms, cloudy aſpect and diſtreſs about the ſtomach, the feelings were eaſy, the mind cheerful, the features bright, and the eye lively, but the head was affected with delirium, the ideas were gay and pleaſant, the pulſe developed, or became full, expanſile and elaſtic, the ſkin became ſoft and moiſt, a covering, formed upon the tongue of a brown colour and moderate thickneſs, began to ſeparate at the edges, ſleep returned, and in ſeven days more, or, on the *14th* from the commencement, a criſis, complete and final, was effected. This diſeaſe had two periods; in the firſt, the ſymptoms were irregular and the irritation conſiderable; in the ſecond appearances tended to regular criſis, by a gradual developement.

N. B. The five caſes, detailed above, are among the more regular forms of contagious fever. The excitement of the ſyſtem was evident from the commencement; and the period of criſis or change was about the ſeventh,—the more uſual period of perfect termination.

April 30th, 1795. *M——n*, employed as ward-maſter in the hoſpital at Dorum, and neceſſarily living among men in the moſt aggravated ſtates of diſeaſe, was attacked in the morning with giddineſs,

ſenſations of coldneſs, pains, aching of the limbs, and headach uncommonly ſevere. The tongue, in the courſe of the day, appeared white, ſlimy and foul, the countenance grim and cloudy, the eye unuſually white and ſtaring, the heat deep ſeated, and rather pungent, the ſkin dry and unpleaſant; the pulſe quick and frequent,—but frequent in no very remarkable degree. An emetic was given immediately, bliſters were applied to the forehead, temples and neck; calomel with James's powder was alſo preſcribed to him. *May* 1*ſt*, Symptoms abated, but the ſkin is dry, and the pulſe has not recovered energy and expanſion. 2*d*, The fever is ſubſided, but the countenance is ſtill dark and grim, the eye white—the diſeaſe ſuſpended, but not finally departed. 3*d*, Seems better. 4*th*, Rather advancing; but though there is no pain, no formed complaint, he is ſtill under ſome morbid impreſſion. 5*th*, Went to Bremenlehe and embarked for England. 12*th*, He relapſed on the 7*th*,—has been exceſſively ill, and now has a livid and grim aſpect with delirium, ſpaſmodic and convulſive twitchings. 13*th*, The ſpaſmodic twitchings have ceaſed, the intellect is clear, the pulſe full and free, the countenance brightened up, the vigour increaſed, the tongue becoming clean; in ſhort, there are general ſigns of criſis, but from the toes to the riſe of the calf, a blackneſs, like a pair of half boots, appears on both legs. The ſudden appearance of partial mortifications on ceſſation of febrile ſymptoms is not uncommon, but to the extent, and in the form

of the preſent is certainly rare.—The final event of this caſe is not known to the author.

December 26th, 1794. *M——y*, ſergeant of the regimental hoſpital of the Buff, attacked with the ordinary ſymptoms of fever in the evening, with ſome degree of chilline ſs, ſevere aching of the limbs, joints and particularly of the arms,—ſevere and irregular pains in various parts of the body;—the headach violent in an uncommon degree. *27th*, Reſtleſs night; intenſe and ardent heat of the ſkin; a dark and clouded countenance; a white, ſlimy and moiſt tongue; ſevere pains, ſhooting irregularly along the ſhoulders and arms at intervals, as if in exploſions. *28th*, The ſkin ſtill dry; the heat cauſtic and fiery; the pulſe frequent and quick, but without energy of ſtroke; the countenance grim; the headach ſevere. Emetics, purgatives, ſudorifics and bliſters were employed at the uſual times, but their good effects were ſmall. *29th*, The night reſtleſs;—in the morning waſhed all over with cold water;—the headach and pains in the other parts of the body were immediately aſſuaged, the countenance brightened up, the heat no longer imparted the fiery cauſtic impreſſion, the ſkin became ſoft and warm, but the tongue is not yet clean. *30th*, Better,—reſted tolerably well. *31ſt*, Better, but the appetite is not yet returned.—He was moved to Arnheim, and ſo much did he improve by being moved through the pure air of an intenſely cold day, that he ſoon became able to walk on his own legs, and actually walked a great part of the way.

March 20th, 1794. *Sergeant M——ns*, attacked with fever;—the ſymptoms violent in the commencement, but, by reaſon of his being at an outpoſt, no aſſiſtance was afforded till the evening of the *21ſt*, the headach was then uncommonly ſevere, with a certain foreneſs of the ſkin or tenderneſs of touch; there was beſides conſiderable agitation, with ſymptoms of the convulſive kind and diſorder of the intellect. Calomel and James's powder, bliſters to the forehead and nape of the neck were the firſt remedies employed; the room where he lay was ſmall, admitting pure air very ſcantily. *22d*, The appearances by no means favourable, the heat ſubſided, the pulſe ſmall and frequent, the ſkin damp and greaſy, the head affected with delirium. *23d*, Delirious,—nearly inſenſible,—the urine and ſtools paſſing involuntarily or unconſciouſly; the pulſe ſcarcely perceptible; the ſkin greaſy, clammy; the lips pale; the countenance ſcarcely animated; the eye languid:—in ſhort, appearances indicate the near approach of death. In this ſtate he was carried from his room in a blanket; his hands, face and breaſt were waſhed in cold water; he was conveyed through the freſh air, a diſtance of four or five hundred yards, in a wheel-barrow; he was immediately revived; he ſpoke diſtinctly, his recollection returned, and his recovery was completed in a few days.—In about three weeks, when on the paſſage to Jerſey, he ſuffered a relapſe. The ſymptoms were ſimilar to the preceding, but not ſo high in degree; he was carried aſhore, on

arrival in the harbour, washed in cold salt water; in the course of a few hours he suffered an attack of severe griping, followed by some stools with a considerable mixture of blood.—He recovered apace.

December 27th, 1794. *W——ms*, attendant on the sick in the hospital of the Buff at Lint, was attacked in the evening with fever of great violence, stupor and violent affection of the head, succeeded by spasms, excruciating pains of the limbs and ardent heat. Emetic, blisters, purgatives. *28th*, Somewhat easier; a considerable remission, but still an uncommon aching of the limbs, thirst, white slimy tongue and clouded countenance. *29th*, Symptoms more severe; heat ardent; pains excruciating,—with much soreness of the flesh; body open; some nausea and disposition to vomit. *30th*, The skin cool; the pulse, increased in the frequency of its strokes, diminished in force and expansion. Vomiting severe and incessant,—the quantity thrown up far exceeding the quantity drank. *31st*, Vomiting continues;—sent to the general hospital;—the event unknown to the author.

February 10th, 1794. *J——n*, attacked with severe headach, excruciating pains of the limbs, pains of the sides,—the pulse frequent and quick,—the heat considerably increased,—the skin dry,—the tongue foul and the thirst very troublesome.—An emetic was given immediately; it operated well, and was followed by a dose of calomel and James's powder;—blisters were applied to the forehead, temples and

neck. 11*th*, Relieved conſiderably, but he breathes with difficulty,—complains of pains, in various parts of the body, frequently changing ſeat ;—to which is added a good deal of agitation, with ſpaſmodic or convulſive motions. 12*th*, Bad reſt ;—the breathing difficult,—the pulſe intermits. 13*th*, The pulſe ſmall, intermitting, the eye and countenance indicate ſomething uncommon ;—the urine is ſuppreſſed, with ſevere pain. 14*th*, Bloody urine in great quantity ;—the pulſe natural ; the ſkin ſoft ;—marks of criſis apparent. This man ſuffered two relapſes of this diſeaſe in the ſame form, but of leſs violence, —the termination always marked by ſuppreſſion of urine, followed by diſcharges of blood from the urinary paſſages.

December 15*th*, 1794. *Sergeant D——n*, attacked in the morning with chillineſs, headach exceſſively ſevere, pains of the limbs and ſpaſms of uncommon alarm ; the pulſe frequent, irregular, and diſturbed ; the eye gloſſy and ſhining ; the tongue white and ſlimy :—an emetic was given immediately, followed by calomel and James's powder, with one bliſter to the forehead and another to the neck. 16*th*, Somewhat eaſier ; the ſeverity of the ſymptoms abated, but the diſeaſe not removed ; the ſkin hot and dry. 17*th*, The ſymptoms recurred with aggravation ; the local pains and ſpaſms ſevere ; the aſpect clouded, the eye gloſſy ; the tongue white and ſlimy. 18*th*, Reſted well ;—the ſymptoms ſubſided, but the marks of criſis not decided and clear. This man advanced in recovery for eight days, at which period

he relapſed ;—the relapſe ſimilar in kind and of the ſame duration ;—the criſis not decided and final ;—at another ſeptenary period he ſuffered another relapſe, but in the event his health was eſtabliſhed.

The above ſix caſes furniſh examples of a form, the duration of which does not exceed the 5th day ; it frequently terminates on the 3d. It ſometimes terminates by criſis or ſenſible evacuation, oftener in a certain ſubſiding or ſuſpenſion of diſeaſed motions ; in either caſe it is ſubject to recur at a ſhort interval.

November 30*th*, 1793. *Ch——y*, ſeized with ſlight ſymptoms of fever, ſome headach and much aching of the limbs,—little diſorder in the pulſe. *December* 6*th*, The diſeaſe has advanced by ſlow and regular progreſs ; the tongue is often dry, and ſometimes blackiſh ; the ſkin is dry, and the reſt bad. 13*th*, Marks of criſis ; the ſkin ſoft and moiſt ; the tongue becoming moiſt and clean ; the pulſe approaching to natural and reſt returning.—The medical treatment conſiſted in antimonials, camphire, ſnakeroot and wine. The continuance of the complaint was a fortnight ;—during the ſecond week, there was a gradual developement of the action of the vaſcular ſyſtem ; and the diſeaſe was finally terminated by marks of criſis, but convaleſcence was ſlow.

March 18*th*, 1796. *S——l*, aged fifty-five, living in the air of a highly infected ſhip, attacked with fever, much headach, a dark grim and withered countenance, a ſmall and weak pulſe, no great increaſe of heat, a dry and foul tongue.—An emetic,

calomel and antimonial powder,—the head ſhaved and bliſtered.—20*th*, The ſkin dry; the pulſe ſmall and weak, the headach abated—ten grains of camphire and ſnakeroot every third hour. 23*d*, Some perſpiration, but neither fluid nor warm;—continues the medicine. 24*th*, Not worſe; the pulſe in the morning ſomewhat more open;—in the evening diſtreſſed by hiccup—æther was given frequently. 25*th*, The pulſe ſunk, and imperceptible, the extremities cold and clammy; ten grains of camphire, in three ounces of ſpirit of wine every hour. 26*th*, Somewhat better; the pulſe perceptible; the heat returning: continues the medicine. 27*th*, Improving. 29*th*, Much better.—He relapſed on the 3*d* of April;—recovered—relapſed again; and at laſt attained eſtabliſhed health.

The two caſes above mark a diſeaſe, where there was little apparent increaſe of action in the vaſcular ſyſtem; in the one, the powers of life ſeemed to emerge from a given period; in the other, at the ſame period, they ſeemed to be on the point of ſubſiding finally. The 7*th* was here the day of change.

April 16*th*, 1795. *P——n*, attendant on the ſick in the hoſpital at Dorum, went out in the evening to light a candle, and returned, in a few minutes giddy and ſtupid as if dead drunk; conſidered as ſuch, by his companions, he was concealed from the medical officer for twelve hours; next day he ſhowed marks of an oppreſſed brain; he was deeply comatoſe; the pulſe was nearly extinguiſhed; the ſkin was purpliſh, cool and clammy; he was ſpeech-

leſs,—and died in the night, in leſs than thirty hours from the attack.

February 26th, 1796. *W——n*, an orderly attendant on ſick, had been drooping for ſome days, but ſaid nothing; to-day ſeized ſuddenly with pain of the head, as if knocked down by the blow of a hammer; the eye white, gloſſy and inanimate; the countenance grim and cloudy, with a tinge of a duſky yellow exhibiting a colour not unlike that of mahogany;—the pulſe, ſuperficially obſerved, appeared natural, cloſely examined, it ſeemed deficient in elaſticity and expanſion; the heat low on the ſurface and extremities, pungent on the trunk of the body, or on forcible preſſure of the arm; the tongue foul, white and ſlimy,—but moiſt; the ſaliva tough and ropy: the head was bliſtered; the warm bath was preſcribed; and the body was opened by means of calomel and James's powder. He ſeemed eaſier towards evening. *27th*, Seized with a convulſion, and died ſuddenly;—the countenance like mahogany, with a tinge of yellow,—the eye clear, gloſſy and inanimate.

The above two caſes are of the moſt concentrated form; re-action, or increaſed action of the vaſcular ſyſtem did not take place, at leaſt was not generally eſtabliſhed.

April 10th, 1795. *H——y*, attacked with chillineſs or horror and ſevere headach in the night; there are marks of much anxiety, with a certain undeſcribable diſtreſs; the degree of heat on the ſkin is moderate, but the ſkin is dry and conſtricted;—

to this are added nauſea, ſome diſorder of the bowels, ſpaſmodic and convulſive twitchings, with ſome derangement of intellect. He was vomited and purged very freely, bliſtered, &c. 11*th*, The ſymptoms ſubſided, but ſomething ſtill remains that is very ſingular. 12*th*, Another paroxyſm has occurred, in which the ordinary ſymptoms of fever are moderate, but the fears, horrors and apprehenſions are great and uncommon; he is much agitated, as if in fear of life from violence; the tongue is foul and white; the ſecretions are irregular, and ſleep is much diſturbed; there is little increaſe of thirſt.—From the 12th of April to the 10th of May, he ſuffered a peculiar derangement of intellect, aggravated in paroxyſms, but never abſent; the marks of fever were not very evident, only the tongue was white and foul, the veins of the eyes red, and the colour of the eye yellow, the aſpect grim and cloudy, his apprehenſions were ſometimes gloomy and threatening, at other times lively, but ſingular and ſtrange. He gradually recovered health and underſtanding.

The above is an example, where the cauſe of fever ſeemed to act chiefly, by occaſioning a mental derangement.

March 4*th*, 1796. *C——l*, attacked four days ago with violent griping, and ſevere purging. 5*th*, Purging abated, a ſenſation of want of power of the alimentary canal remains; calomel, antimonial powder and aromatic confection. 6*th*, Tongue dry, ſkin hot, eyes yellow, pulſe quick and ſmall.—Glyſters and warm bath. 7*th*, Better,—body open;

three ſtools.—8*th*, Better. 11*th*, Yellowneſs gone, —recovering faſt.

The above is an example of fever, in dyſenteric form, ſuffering changes from treatment.

January 20*th*, 1796. *S——n*, a man near ſixty years of age, had been ill of fever and ſeemed recovering,—walked about and was conſidered as convaleſcent, when he was ſeized ſuddenly with chillineſs, a collapſed and withered aſpect, accompanied with a deep ſeated, cauſtic heat, dry ſkin, ſmall, confined and frequent pulſe.—21*ſt*, Died in the courſe of the day, with an aſpect withered and ſhrunk like a plant blaſted by froſt or mildew.

January 31*ſt*, 1796. *B——n*, a young man, in the act of embarking among convaleſcents, appearing pale, dry and withered, was ſent back to the hoſpital. Fever was immediately obvious; an ardent, cauſtic, deep ſeated heat; a pulſe ſmall, frequent and inelaſtic; a ſhrunk and withered aſpect. *February* 1*ſt*, Died in the courſe of the day, withered and conſumed, as if the powers of life had been arreſted by the direct operation of the morbid cauſe.

The above are two caſes of relapſe, where the firſt operation of the cauſe proved fatal.

SECT. II.

Caſes of Endemic Fever.

September 1. 1796. A SERJEANT of the 67th regiment was attacked, two days ago, with ſevere head-

ach and other ſigns of fever; the heat ardent, the pulſe tenſe, quick and frequent. Nothing was done till the evening of the ſecond day, when fourteen ounces of blood were drawn from the arm; the headach was inſtantly relieved: James's powder was given immediately, with eight grains of calomel;—copious evacuations by vomit and ſtool were the conſequence.—This morning the headach is abated; the appearance of the eye is leſs inflamed; the heat is diminiſhed, as alſo the quickneſs and frequency of pulſe, but the force of the ſtroke is diminiſhed and there is not any tendency to perſpiration; there is likewiſe a ſenſe of oppreſſion at ſtomach, with ſickneſs, great internal heat and reſtleſſneſs. Evening. Extremely uneaſy, anxious and reſtleſs; vomits matters glutinous and flakey; the pulſe ſmall, confined and heſitating; the body open; the countenance changing colour often,—fluſhed or pale; no perſpiration. 2*d*, Extremely uneaſy; no reſt in any poſture; the uneaſineſs referred to an anguiſh at ſtomach; vomiting and purging of watery ſtools ſevere and haraſſing.—The vomiting abated about ten o'clock; he became inſenſible, convulſed,—and died about noon.

Auguſt 19*th*. *Jn—m* had been rather unwell during the earlier part of the day, in the evening ſeized with headach, chillineſs and fever. 20*th*, This morning the ſkin is hot; the face fluſhed; the tongue foul; the pulſe ſtrong, frequent and quick; the eye muddy and ſomewhat inflamed.—Jalap and calomel in large doſe. Evening. The heat rather

abated; the ſkin dry; the pulſe ſtrong and frequent;—the medicine operated ſeverely. 21*ſt*, Purging ſtill conſiderable; the ſkin hot and dry,—the heat pungent; the pulſe tenſe and hard; the eye muddy, with headach, foul tongue, frequent ſighing and heavy breathing: bled,—and bathed in warm water in the evening. 22*d*, Slept during the night; the headach abated, the eye leſs muddy; the extremities cool; the cheſt and præcordia pungently hot; the pulſe weak, but diminiſhed in frequency,—ſcarcely febrile; the tongue red at the edges,—or beginning to become clean; the body open,—even to purging; no ſickneſs, or vomiting; the lips dry; the ſkin dry, with a certain tinge of yellow about the neck and corners of the mouth. Evening. He ſighs frequently, but does not complain of pain; the heat of the ſkin above natural; the pulſe fuller than in the morning; the tongue moiſt, and clean at the edges; the præcordia hot; the breathing thick, and chiefly performed by the muſcles of the abdomen; the countenance grim and cloudy; ſome degree of purging,—perhaps in conſequence of having drank plentifully of beverage of cream of tartar. 23*d*, Conſiderable purging during the firſt part of the night;—at preſent he vomits flakey matter; the veins of the eye are become red, as if injected; the countenance is duſky and livid; the ſkin cool and dry; the pulſe ſinks; the breathing is thick and oppreſſed.—He died about noon.

Auguſt 24*th*. Y——*g*, attacked with the uſual ſymptoms of fever in the night;—bled in the morn-

ing,—bled again about noon. Evening. He expreſſes relief, but ſtill complains of thirſt; the ſkin is hot, without ſigns of approaching perſpiration; the pulſe tenſe and quick. Salts and emetic tartar have operated freely. 25*th*, Slept during the night; is eaſier, but does not perſpire; the body is open, and the fever moderate. Evening. He began to perſpire about noon with relief; the ſkin is now warm and moiſt; no particular complaint, but the pulſe is ſtill febrile. 26*th*, Slept during the night; the pulſe ſubſided; but the ſkin dry, and marks of criſis not deciſive. Evening. Nauſea and deſire to vomit; the ſkin dry. 27*th*, The pulſe ſlow, ſoft and full; the ſkin warm, with general ſweat and marks of criſis.—Recovered rapidly. *N. B.* Beſides the bleeding and emptying of the firſt paſſages by means of ſalts and emetic tartar, this patient was bathed in warm water, and obliged to continue in the bath, till he was upon the point of fainting, after which he was waſhed with water from the ſea.

September 3*d*. *E——s* had been ill of fever two days, but was not attended to till late laſt night; the heat was then ſtrong and deep ſeated, the headach ſevere, the eyes muddy and inflamed: He was bled immediately, to the quantity of twelve or fourteen ounces,—bathed in warm water,—the head was ſhaved and bliſtered; and the bowels were opened freely by means of ſalts and emetic tartar. The external marks of fever are leſs prominent this morning, but the ſkin is dry and huſky; the headach is ſomewhat abated, but the eye is ſtill inflamed

and muddy; the tongue is foul; the lips dry; the thirſt conſiderable; purging is in exceſs;—the ſtools are watery and large; the pulſe is without expanſion of ſtroke. Evening. The pulſe became gradually weaker in the courſe of the day, and now is not to be felt at the wriſts.—He died about eight o'clock.

N. B. The above four caſes of fever furniſh examples of that form of diſeaſe, where there is a conſiderable degree of vaſcular excitement in the early ſtage, terminating commonly by deranging the functions of an organ of importance,—moſt frequently the liver or ſtomach. Yellowneſs and black vomiting are common, and it is more eſpecially to this form, that the name of Yellow Fever has been applied; but, though the yellowneſs and black vomiting be common, they are not conſtant and eſſential. Determinations ſometimes change ſuddenly,—the brain becomes overwhelmed, and ſtupor or convulſion then cut ſhort the ordinary rapid courſe.

Auguſt 25th. *B——r*, attacked yeſterday, early in the morning with chillineſs, giddineſs and pain of the limbs; at preſent complains much of headach, pain of the eyes and general uneaſineſs; the pulſe is ſmall, weak and frequent, but the ſkin is not hot, in any remarkable degree; the tongue is foul and moiſt,—the colour of its covering ſomewhat brown or buffy; the eyes are muddy, watery and twinkling. This man was bled, purged with ſalts and emetic tartar, bathed in warm water,

waſhed afterwards in water from the ſea,—the head ſhaved and bliſtered. Evening. The headach is ſomewhat abated; the eyes are brighter, but the pulſe is ſtill ſmall, frequent and confined; the ſkin is dry, with thirſt; the evacuations downwards have been copious,—he has alſo vomited; he ſighs often and breathes deep;—a bliſter applied to the ſtomach, —camphire, ſnakeroot, volatile ſalt and opium in bolus, repeated every ſix hours. 26*th*, Slept tolerably well during the night; the headach is eaſier, and the eyes are brighter; the tongue is rough and brown; the body is open,—rather looſe; the ſkin dry; the pulſe ſmall and confined, but not tenſe; the eyes twinkle, appear watery and confuſed. Evening. The ſkin moiſt, but the moiſture does not deſerve the name of ſweat,—the pulſe more full;—the bolus repeated, with the alternate uſe of warm and cold bathing. 27*th*, Slept well and comfortably; but there is no perſpiration, and the pulſe is ſmall and frequent, with ſome pain of the eyes and conſiderable thirſt; the body is open; the tongue is white and foul;—fever ſtill ſubſiſts. Evening. Hot and uneaſy; the bolus repeated with warm and cold bathing.—28*th*, Slept well,—free from pain; the tongue foul and rough, with thirſt; the pulſe more free, but ſtill ſmall and frequent; the heat ſomewhat above natural. Evening. The tongue clean; the ſkin ſoft and of a temperate heat; the ſpirits light and cheerful;—ſeveral free evacuations by ſtool. 29*th*, The eye clear; the

pulſe flow, regular and free; the ſkin ſoft. 30*th*, Marks of criſis decided.

September 7th. *D——y*, attacked yeſterday with a moſt violent, almoſt inſupportable headach and ſevere pains of the abdomen; was bled to the quantity of twenty ounces,—and is now quite eaſy. 8*th*, Skin open, but he has not as yet any return of appetite. Evening. The ſtomach inflated,—nauſea; no headach, or return of fever. 9*th*, Inflation of the ſtomach,—tongue foul. 10*th*, Uneaſineſs at ſtomach; throbbing headach; frequent chills and fluſhes of heat; bliſter to the ſtomach, with a bolus of antimonial powder, camphire and ſnakeroot. 11*th*, No ſleep;—a ſenſe of chillineſs; pains in various parts of the body changing place frequently; tongue white,—lips dry;—warm bath; bliſter to the back of the neck;—ſome acceleration of pulſe and marks of formed fever. 12*th*, Better;—no fever. 13*th*, Better.—Recovered completely in a few days.

September 4th. *Pr——e*, ſeized with intenſe pain of the head and limbs, chillineſs and increaſed frequency of pulſe; the pulſe, at preſent, frequent and ſmall; the headach ſevere,—the pain over the eyes; the tongue white, and of an unpleaſant appearance: bled immediately to the quantity of twenty ounces; alternate warm and cold bathing; the head ſhaved and bliſtered;—a ſolution of ſalts and emetic tartar operated freely. Evening. The frequency of the pulſe is abated; the heat is moderate; the pains are gone; and there has been a ſlight perſpiration.

5*th*, Slept tolerably well; the tongue is clean; the pulſe more frequent than natural; the ſkin dry, with ſome increaſe of thirſt;—no return of appetite. Evening. The tongue dry; the ſkin dry; the pulſe febrile;—giddy when he moves. 6*th*, Slept in the night; tongue clean and moiſt; the giddineſs gone; the eyes heavy; the pulſe febrile; the ſkin warm; the body open;—foreneſs of the limbs;—deficient animation of countenance. Camphire, ſnakeroot, antimonial powder, in bolus; the warm bath, followed by waſhing with cold water from the ſea. 7*th*, Several ſtools in the night; no ſickneſs or nauſea; the ſkin dry; the pulſe more frequent than natural,—and not full; the eye more lively;—no complaint of pain, or uneaſineſs. Evening. Better. 8*th*, Tongue clean, ſkin cool; pulſe more open and free:—Recovered completely in a few days.

Auguſt 26*th*. *P——k*, attacked laſt evening about nine o'clock with giddineſs blindneſs and deprivation of ſenſe, from which he recovered, complaining of a moſt violent pain of the head and eyes, pains of the limbs and joints, alternate fluſhes of heat and cold. In the evening the pulſe was ſtrong and quick, with much headach and conſiderable heat of the ſkin; bled to twenty ounces; bathed in warm and cold water; bliſtered, and purged by a ſolution of ſalts. 27*th*, Slept ſome part of the night; the ſkin is cool, but dry; the pulſe ſmall and quick, with headach and pain of the limbs; thirſt, and foul white tongue: bled to ſixteen ounces. Evening. The common marks of fever are gone; the ſkin

is ſoft and warm:—no pains or complaint. 28*th*, Slept well; ſome return of appetite;—no complaint. 29*th*, Seems languid, ſlept well. Evening. More lively. 30*th*, Better:—recovered faſt.

Auguſt 14*th*. *C*——*t*, attacked, about twelve o'clock, with pain of the head, pain of the loins and limbs. 15*th*, No reſt during the night; the headach continues; the tongue is foul; the pulſe is ſlow and ſmall; the body open; and heat not materially increaſed;—half an ounce of ſtrong mercurial ointment was rubbed into the thighs, in the courſe of the day. 16*th*, The headach abated; he perſpires and is eaſier in every reſpect, though the pain of the back is not gone;—the pulſe is low and ſmall; the tongue foul; the body open:—the friction continued. 17*th*, Pains of the bowels like ſpaſms; no marks of fever in the pulſe. 18*th*, The abdomen inflated, with purging, thirſt and dryneſs of the lips. 19*th*, The belly ſtill inflated. 20*th*, Eaſier. 21*ſt*, Much purging in the night. 22*d*, Severe griping and purging during the night,—at preſent abated. Evening. Pain in the left ſide, under the ſpleen, with uneaſineſs and hurried reſpiration, but without diſtinct marks of fever. 23*d*, Conſiderable purging in the night; pain in the ſide in breathing. 24*th*, Griping and purging during the night. 25*th*, Better.—*September* 1*ſt*, Advanced in recovery,—ſeized ſuddenly, in the evening, with pain and uneaſineſs at ſtomach, anxiety and uncommon diſtreſs; the pulſe frequent, ſmall and feeble; the lips pale, with marks of uncommon exhauſtion. 2*d*, Evening.

Somewhat eaſier; the ſkin warmer; the pulſe leſs frequent and more full; purging,—the ſtools ſmall, frequent and bloody,—with teneſmus. 3*d*, Eaſier; but ſtill purged. Evening. Much diſtreſs; pulſe ſmall and frequent; pains of the legs and thighs inſufferable; no material increaſe of heat; breathing thick; the ſenſations uncomfortable; thirſt, with an averſion to every ſpecies of food; the eye clear, but gloſſy and inanimate. 4*th*, Night reſtleſs,—evacuations frequent;—the ſtools black and bloody, ſlimy and ſmall,—with conſtant teneſmus; the pulſe frequent and ſmall. 5*th*, Eaſier; ſlept ſome part of the night,—had four motions;—the pulſe more expanded. 6*th*, Slept tolerably well; the purging abated; the tongue is become foul, with an increaſe of thirſt, greater frequency and force of pulſe. Evening. Very much griped, with conſtant teneſmus, and frequent black, fœtid, bloody and ſlimy evacuations. 7*th*, The number of the evacuations leſſened,—the pulſe ſlower. Evening. The evacuations have been numerous in the courſe of the day; but they are more inſtantaneous and effective than formerly. 8*th*, Slept well; the purging abated, and the nature of evacuations changed. 9*th*, Better;—recovered in a few days.

Auguſt 10*th*. C——*e*, a young man, of a clear complexion and full habit, was ſeized three days ago with fever, the leading ſymptoms of which were headach and vomiting: to-day the ſkin is cool and dry; the pulſe is not like the pulſe of departed fever, though it is difficult to deſcribe its preciſe

character; the tongue is clean; whatever is drank is thrown up; there is, at the ſame time, a conſiderable degree of purging; the headach is abated, but the ſkin is dry, and the aſpect withered. 11*th*, The ſkin dry; the aſpect withered and duſky; the eye dull and red; the pulſe ſmall, and more frequent than natural; the lips dry; the tongue red:—on ſuperficial obſervation, it appears as if natural,—narrowly examined it is found to be dry and gloſſy;—to theſe are added giddineſs on motion, frequent ſighing, deep breathing and great uneaſineſs of ſenſation. Evening. The withered aſpect of the countenance and diminution of the vital energies have made great progreſs in the courſe of the day; the pulſe is ſinking faſt, the ſkin becoming livid and cold; alternate warm and cold bathing produced no ſenſible effect. 12*th*, He vomits matter like the grounds of coffee,—is cold and clammy;—he became delirious, and died about ten o'clock.

September 30*th*. *V——h*, attacked with fever three days ago, commencing with alternate fluſhings of heat and cold,—the cold very ſlight,—with headach, pain over the eyes, muddineſs of the eyes, thirſt, nauſea, diſtreſs and uneaſineſs of ſenſation: he was purged with calomel and antimonial powder. —Yeſterday morning the ſkin was hot, the heat, though not great, was of the pungent kind; the thirſt was conſiderable; the headach diſtreſſing; the eye muddy; the tongue foul, with a very bad taſte in the mouth; the pulſe rather ſmall, confined, and frequent: bled to the quantity of fourteen ounces,

fainted, perſpired and was upon the whole relieved; the heat ſtill in ſome degree pungent or unpleaſant, the internal ſenſations of it exceeding the external ſigns; to this is added nauſea, or an uncommon feeling at ſtomach. Evening. A bliſter was applied to the pit of the ſtomach. To-day there is much ſtrangury,—a certain irritation on the alimentary canal combined with want of power, nauſea, even vomiting of matters in ſome degree bilious; the countenance duſky and brown; the eye clearer and more compoſed than yeſterday; the headach aſſuaged; frequent ſighing, interrupted breathing, and occaſional tendency to faint; the pulſe frequent,—not ſtrong or full; the ſkin moderately hot; the taſte of the mouth diſagreeable; the action of the vaſcular ſyſtem deficient in energy, but there are no marks of a ſubſiding diſeaſe;—a great deſire of cool air, with unpleaſant ſenſations of internal heat. *October 1ſt*, Eaſier; had ſeveral ſtools in the night, but did not ſleep; no headach,—no ſweat; the ſkin warm; the pulſe improved; occaſional nauſea and faintneſs. *5th*, Evening. He has continued without threatening ſymptoms, though without ſigns of criſis or decided recovery. He ſlept uſually at night, and, according to his own report, has perſpired ſometimes. The ſkin at preſent is dry, the lips are dry; he complains of thirſt, and of an uncommon bad taſte of the mouth,—a nauſeous and offenſive taſte;—the tongue is covered with a reddiſh tough pellicle or cruſt,—an exudation of blood; the pulſe is ſmall, confined, not frequent in any remark-

able degree, but imparting a ſenſation of diminiſhed energy. *6th*, Slept at times, and lies ſeemingly at eaſe; the countenance is collapſed and withered; the eye has a yellow tinge and a lifeleſs aſpect; the ſkin is dry; the pulſe ſmall and more frequent than natural; the lips are dry; the tongue is reddiſh,—covered with a cruſt of blood, which ſeems to ooze from the whole ſurface of the alimentary canal;—purging;—ſtools dark, bloody and fœtid. *7th*, Reſtleſs,—much griped,—ſtools as yeſterday; the tongue the ſame. Evening. The pulſe more expanſile; the ſkin warmer and more ſoft, but the exudation of blood from the alimentary canal continues; intellect clear, but ſenſations uncomfortable. —He died in two days.

N. B. The above ſeven caſes furniſh examples of a form of diſeaſe, where the vaſcular ſyſtem ſuffered leſs commotion than in the former;—determinations were ſometimes irregular and changed ſuddenly, but organs did not ſeem to be generally deſtroyed by exceſs of excitement.

Auguſt 4th. *F——n* complained yeſterday, but did not much attend to it, to-day, about noon, attacked with ſevere headach, ſtrangury, ſtricture on the cheſt and many unpleaſant ſenſations; the countenance is livid and grim; the pulſe frequent, and without expanſion of ſtroke,—hard, ſtarting and irregular; the tongue is whitiſh and ſlimy; the heat of a pungent kind, but not great in degree; he is uneaſy in himſelf, reſtleſs and under conſiderable agitation and apprehenſion of mind:—the head was

ſhaved, camphire, antimonial powder, opium and volatile ſalt in bolus were given immediately afterwards. *5th*, Very reſtleſs, during the night,—much diſtreſſed by ſtrangury, and otherwiſe uncomfortable. Evening. A ſlight perſpiration; the pulſe more dilatable and more regular; the headach abated, but he ſtill complains of a tightneſs about the eyes, and an unpleaſant ſenſation through the whole head; the ſtrangury is ſomewhat leſs troubleſome, but there are ſtill feelings of want of power,—a ſuſpended or diſturbed action of the moving fibre, with flatulence and nauſea;—bliſters were applied to the temples. *6th*, Slept a good deal during the night; the eyes ſeem better, but there is ſtill an unuſual ſenſation in the head; the ſkin is ſoft and perſpirable; the pulſe abated in frequency, but not ſoft and full; the ſkin cool; the tongue white,—the coat forming upon it becomes thicker, and acquires a browniſh caſt; the ſtomach is irritable;—there is a ſenſe of preſſure in the region of the bladder; the lips are dry, with a withered darkneſs of countenance:—medicines continued. Evening. The eye and countenance ſeem more cheerful; the ſkin is ſoft or damp, but the pulſe is ſtill tenſe and confuſed; the ſtrangury is not gone, though leſs diſtreſſing than formerly; the ſtomach is inflated,—the inteſtines labour under a defect of power,—he is uneaſy, but cannot affect a motion:—a feeble eruption begins to make its appearance on the upper lip. *7th*, Has ſlept during the night, but the intellect is not altogether clear; the pulſe is tenſe

and confined; the ſkin damp: waſhed in cold ſalt water; the pulſe became ſofter, but not ſtronger or more expanſile;—the eye appears heavy and ſuffuſed. Evening. The countenance withers; the body is open,—perhaps amounting to purging; there is alſo nauſea, ſickneſs, thirſt, dry lips, a dry and cool ſkin, a pulſe weak and confined in its ſtroke,—the eruption on the upper lip does not advance, the intellect is not clear:—two ounces of mercurial ointment were rubbed upon the legs and thighs. 8*th*, Reſted pretty well; the ſkin warmer, and the pulſe fuller. Ten o'clock;—the ſkin cool, the pulſe ſmall; eaſy in his feelings; the tongue moiſt; the ſkin, particularly upon the neck and near the mouth, of a yellow dingy appearance; the eye heavy and ſurcharged,—the veins loaded:—he ſeems eaſy and appears to ſleep:—muſk, æther and other powerful ſtimulants have been applied to no effect:—the powers of life failed gradually, and he died about ten o'clock in the evening,—not ſtrictly yellow, but of a dark and dingy colour, not unlike a ſhade of mahogany.

Auguſt 15th. *K——g*, a man in the regimental hoſpital of the 56th regiment for the cure of an ulcer on the leg, now in a healing ſtate, attacked in the night with coldneſs and ſhivering, headach and violent pains of the loins; the pulſe quick and frequent, with a general ſenſe of foreneſs all over the body: an emetic was given immediately, the head was ſhaved and bliſtered, calomel with antimonial powder was preſcribed after the operation of

the emetic and repeated at intervals, mercurial ointment was rubbed upon the legs and thighs. Evening. The ſkin cool, the pain of the head ſomewhat abated, the ſkin damp. 16*th*, Headach ſevere, the pain of the loins abated, the tongue clean, but dry and gloſſy; the eye clear,—unuſually white and vacant,—coſtive,—calomel and mercurial friction repeated. 17*th*, Very uneaſy, complains of his legs and thighs as ſuffering ſeverely, vomits at times; the pulſe is weak, eaſily compreſſed, and not more frequent perhaps than natural; the heat of the ſkin moderate; he ſighs often, breathes deep, and moans; the countenance is fluſhed, or more properly grim and cloudy, as in ſea ſcurvy; the eye muddy; the gums ſpongy, as if affected by mercury; but there are not any marks of an approaching ſalivation:—the medicine repeated with the addition of ſtimulants. Evening. The tongue clean, but dry; the pulſe ſmall and confined. 18*th*, The countenance more grim and duſky; the lips and teeth dry,—and as it were parched; the ſkin dry; the body open; he vomits ſometimes, but not ſeverely; the eyes muddy and heavy; he ſighs often and breathes deep. 19*th*, Very grim in countenance—livid or like a violet all over,—ſinks faſt,—died about two o'clock.

Auguſt 25*th*. *R—g—n* ſeized, in the morning, with headach and pain of the limbs, chilline ſs and affection of the ſtomach. Evening. Walked to the hoſpital, under a cold, clammy ſweat,—the pulſe ſmall, frequent and confined:—an emetic was given

immediately. 26*th*, The pulſe is feeble and ſmall, but more frequent than natural; the head aches ſeverely; the eyes are muddy; the countenance cloudy; the tongue not materially foul; the lips dry;—there is pain of the loins, and a particularly ſevere pain of the ſhin-bones:—ſalts. Evening. The ſalts have operated freely; the headach continues; and the ſkin is hotter than heretofore; a bliſter applied to the forehead. 27*th*, The headach ſtill ſevere; the eye ſad and muddy; the countenance fluſhed, or rather cloudy and grim; the tongue ſlimy; the thirſt conſiderable; the body open; the frequency of the pulſe exceeding natural, but the heat of the body little increaſed; uneaſy and reſtleſs to an extreme degree. Noon. Bled; extremely uneaſy; the pulſe ſmall and frequent; the lips dry; the countenance almoſt livid; the pain of the head exceſſive, with a conſtant toſſing and reſtleſſneſs: the vein was opened again, but the blood did not flow freely,—the pulſe remained the ſame,—or was ſcarcely perceptible: bled again in the courſe of an hour,—expreſſes relief,—the pulſe ſmall, and juſt to be felt,—the lips dry; the countenance livid, or dark;—a diſpoſition to coma, and at the ſame time a peculiar and uncommon reſtleſſneſs. Evening. Bled again,—ſeems as it were to awake, the pulſe riſes; bathed in warm, and afterwards in cold water; the pulſe becomes more diſtinct and full; he is eaſy and ſpeaks cheerfully;—the countenance brightens up. 28*th*, Still complains of headach; the pulſe more open; the

countenance brighter and more cheerful, but he has not ſlept in the night,—is ſtill reſtleſs and toſſes much; the tongue, in ſome places clean, in others, covered with patches of a mealy, white paſte; the ſkin dingy,—with an inclination to vomit. Ten o'clock. Bled again; bathed in warm, and afterwards in cold water,—perfectly ſenſible; the countenance clear; the feelings comfortable; the ſkin cool; the pulſe not frequent, but not ſtrong,—no perſpiration; the eye clear; the lips ruddy. Evening. The eye and countenance cheerful; the pain of the head abated; thirſt is great and uncommon,—throws up ſometimes;—evacuations downwards copious and dark coloured; the pulſe not ſtrong and elaſtic; the ſkin cool and impervious. 29*th*, The countenance and lips ſometimes pale, ſometimes ruddy; the pulſe becoming ſtronger, and more open; the ſkin warm, but dry; the expreſſions of eaſe obvious in the countenance, but the thirſt is great,—almoſt inſatiable; he throws up watery liquor, retains brandy, or brandy and water,—the ſkin appears duſky and dirty, notwithſtanding the frequent bathing and waſhing; the eye is not clear; the tongue not of one appearance,—in ſome places clean, in others white and foul;—the hypochondria are tenſe, with ſenſations of uneaſineſs at ſtomach, and ſometimes obſcure hiccupings. Evening. Seems eaſier,—from his own words better,—the pulſe is free and open,—the ſkin ſoft and warm,—the countenance and lips change colour often;—there is not any delirium, properly ſpeak-

ing, but the perceptions are ſtrange and out of the common train. He has had ſome evacuations downwards, and the anxiety at ſtomach is diminiſhed. 30*th*, The pulſe good; the ſkin warm and ſoft,—perfectly ſenſible,—has ſlept well and does not complain of any particular uneaſineſs, except thirſt;—has brought up a worm about ſix inches in length. Evening. Throws up what he drinks,—hiccups ſometimes, but does not complain of local pain,—the lips change colour very often,—they are dry; the eye is heavy;—he changes poſture frequently and ſeems uneaſy, though he does not refer his uneaſineſs to any particular cauſe:---he complained all of a ſudden of an internal weakneſs or failing—and died about midnight.

N. B. A few particulars of the appearances upon diſſection are added here, as differing materially from thoſe of other caſes, and as produced perhaps by the mode of treatment.—No particular marks of congeſtion were found in the head,—no turgid blood veſſels or ſigns of inflammation; the cortical part of the brain appeared unuſually grey in colour, and perhaps leſs firm in texture than natural; the lungs adhered to the pleura on one ſide, but were not diſeaſed; the liver was little if at all changed in ſtructure; the gall bladder was full of bile,—of a colour ſomewhat more dark than common; the ſtomach contained a large quantity of frothy liquor, like beer in the act of fermentation,—the inner coat was red,—in many places dark, but theſe ſpots or diſcolourings did not appear to extend deeper

than the inner coat,—conſiſting in fact in a certain congeries of diſtended blood veſſels, or of blood effuſed and entangled in the mucous membrane. Every mark of diſtention in the vaſcular ſyſtem was removed,—if diſtention had actually exiſted as in caſes ſimilar;—the action of the arteries, which at one time was ſuffocated or oppreſſed, became developed before the fatal event took place;—the cauſe of death would appear to have been local.

Auguſt 24th. *M——n*, about four in the morning, ſeized with headach, chilline ſs, ſickneſs at ſtomach and pains of the limbs. Evening. Came to the hoſpital,—the ſkin cool and covered with a clammy ſweat,—the pulſe ſmall, frequent and confined,—the countenance fluſhed, confuſed and grim,—the eye white and gloſſy:—bled,—the blood very dark, and, though the orifice was large, it only flowed by preſſure along the vein. *26th*, The orifice opened of itſelf during the night and a good deal of blood was loſt;—in the morning much relieved;—the tongue is foul,—the headach is moderate,—the pulſe is ſoft and full,—the ſkin ſoft and warm,—the body open,—even to purging,—the thirſt conſiderable,—the eye and countenance more cheerful. Evening. External marks of fever more evident,—the ſkin hot and dry,—the thirſt great,—the tongue moiſt, but not foul,—covered with a ropy ſaliva,—ſmooth and of an unpleaſant appearance. *27th*, No ſleep,—no perſpiration,—ſkin warm, but not hot,—the pulſe quick and ſtrong, with pains of the limbs,—the tongue moiſt,—the thirſt mode-

rate,—the ſtomach ſqueamiſh. Noon. Bled,—the blood flowed ſo freely it could ſcarcely be reſtrained, —the pulſe quick,—not weak,—the ſkin dry,—the eye clear,—the neck, and the angles of the mouth of a dingy colour;—the body open,---throws up what is drank,---intermixed with flaſhes of mucus:---camphorated jalap, with a proportion of white vitriol. Evening. Copious perſpiration; general relief, the vomiting abated, but ſome ſqueamiſhneſs and irritability at ſtomach ſtill remain. 28*th*, Slept well and ſweated copiouſly;—fever gone. 29*th*, Skin hot;—the pulſe ſtrong and full. Noon. Perſpiring freely,—the fever going off. *N. B.* This diſeaſe aſſumed a diſtinct remitting form, —the paroxyſms were marked by ſome degree of coma, and the eye and countenance had a conſiderable tinge of yellow.—He was completely recovered by the 10th of September.

Auguſt 26*th*. *H——g*, attacked on the 23*d* with headach, languor and faintneſs,---was ſent to the hoſpital and purged immediately with ſtrong doſes of jalap and calomel:---the pulſe ſmall, confined, and as it were ſunk deep in the arm. 24*th*, ſeemed eaſier,---ſlept a little,---ate ſomething with indifference, the tongue neither clean nor foul,---the ſkin cool,---the countenance languid, dark and greaſy,---the eye gloſſy and white. 25*th*, Much the ſame. 26*th*, Complains of general uneaſineſs, ---the countenance deſponding,---dark,---approaching to livid;---the eye gloſſy and languid;---the pulſe ſmall and weak,---very little increaſed in fre-

quency;---heat not above natural;---nauſea;---no perſpiration;---the ſkin clammy and greaſy. Evening. The pulſe ſmall and ſunk;---the countenance and lips livid:---the whole aſpect unpleaſant. 27*th*, The pulſe improved,—the countenance more animated,—the ſkin warmer,—the feelings leſs uncomfortable. Evening. Nauſea troubleſome;—the pulſe ſmall and ſunk;—the ſkin dry;—the countenance and lips livid. 28*th*, Much as yeſterday. 29*th*, The ſkin moiſt and cool;—the pulſe more diſtinct. Evening. Breathes with difficulty and ſeems upon the point of ſuffocation;—pulſe ſcarcely perceptible.—Bled. 30*th*, Eaſier,—the breathing relieved,—the countenance ſtill dark; the lips dry and pale;—the eye gloſſy and languid,—torpid and inanimate. Evening. Appearances ſomewhat more promiſing. 31*ſt*, Appearances rather improving;—the countenance ſtill duſky, dark and torpid,—the ſkin moiſt, but greaſy and clammy;—the pulſe ſmall and weak;—the body open;—the tongue rather dry. *September* 1*ſt*, The eye rather more animated;—the countenance leſs torpid;---the tongue moiſt; but covered with a black pellicle. Evening. Advancing in recovery. 2*d*, Coldneſs during the night of long continuance, but without rigor or even horror;—at preſent the coldneſs is changing to warmth, with ſome marks of a febrile paroxyſm;—ſenſations of uneaſineſs; pulſe ſmall, and weak. Evening. Perſpired a little during the day;—the tongue is black and dry, but the general feelings are leſs uncomfortable. 3*d*, Better upon the whole;—the eye

and countenance more cheerful;—the voice ſtronger. 4*th*, Much the ſame. 5*th*, Improving. 6*th*, Recovers.

December 9*th*. *L*——*y*, on the morning of the 7*th*, about eight o'clock, attacked with giddineſs, ſo as to fall down, pain of the head, chillineſs and ſymptoms of concentrated fever;—bled;—an emetic was given immediately. 8*th*, Extremely uneaſy and very ill, but no ſymptoms detailed:—a bliſter applied to the neck, with a large doſe of calomel and antimonial powder. 9*th*, In the night extremely reſtleſs, complains of pains in every part of the body,—throws up every thing he takes,—breathes ſhort, and ſeems to be checked or confined in breathing:—a bliſter was applied to the ſtomach,—the diſtreſs is great, but it is not eaſily deſcribed, as not referable to a particular part;—the ſkin and countenance are dingy and violet coloured;—the tongue is rough, foul,—its blackiſh colour is perhaps owing to a quantity of red wine which has been given to him;—the ſkin is moiſt or damp, but the moiſture ſeems to be from agony, rather than the effect of the emerging powers of the vaſcular ſyſtem,—the pulſe is ſmall, frequent, and as it were confined,—ſtrangury is troubleſome, and the alimentary canal appears to have loſt the power of effecting its offices,—the eye has a deſponding appearance:—bled,—the blood flowed reluctantly,—it was remarkably dark coloured, and remained looſe or without ſeparation of parts;—he however immediately expreſſed relief, or as he termed it lightneſs of heart:—mercurial ointment was rubbed into the legs and thighs,—

the camphorated jalap with white vitriol, was grateful to the ſtomach, removed the anxiety and repreſſed the hiccup and vomiting. Evening. More apparent eaſe;—the pulſe ſometimes full, free and expanding, ſometimes ſmall and confined;—perſpiration ſometimes warm and fluid, ſometimes more clammy and unpleaſant;—the eye gloſſy,—the tongue black, but moiſt;—copious dilution of beverage of cream of tartar. 10*th*, Did not ſleep,—wandered and followed fancies in his ſlumbers,—ſtarted often;—the pulſe is ſmall and confined;—the lividneſs of the countenance increaſes;—the ſkin is particularly dark at the edges of the bliſtered places;—on the neck, and at the angles of the mouth, a duſky tinge of yellow is conſpicuous;—the tongue is black and moiſt,—the hypochondria are tenſe,—the breathing laborious,—the body coſtive,—the bowels torpid, reſiſting ſtrong doſes of jalap and calomel,—the lips are dry with much thirſt;—the gums red, as if affected by mercury;—the extremities cold;—the pulſe ſmall and weak,—not more frequent than natural;—vomiting occurs at intervals,—the vomited liquor clear and ropy. Noon. Eight ounces of blood drawn from the arm,—the blood dark in colour,—the pulſe more diſtinct, with an expreſſion of ſome relief;—he vomits often,—throws up more than he actually drinks. Evening. Three or four large black ſtools,—the vomiting ceaſed,—the pulſe more diſtinctly felt,—he breathes thick and ſeems to ſuffer diſtreſs in the region of the liver;—he became delirious

about ten o'clock,—furious,—convulſed,—died about midnight.

N. B. The ſix caſes above, furniſh examples of a form of diſeaſe, which, from the dark and clouded aſpect of the countenance and other circumſtances of ſuſpicion, ſeems naturally to attach to itſelf the appellation of malignant. There is either a good deal of irritation of the moving powers, or there are marks of oppreſſion and torpor, but the action of the vaſcular ſyſtem is not fully and regularly excited.

December 3*d.* *H——n*, was attacked with fever, yeſterday in the evening, with ſevere headach, chillineſs, followed by heat, thirſt, &c. ;—the tongue is at preſent clean; the ſkin is open, but the perſpiration is clammy; the pulſe is ſmall,—the countenance ſallow: —an emetic was given immediately upon arrival at the hoſpital ;—a bliſter was applied to the nape of the neck, and a large doſe of calomel and antimonial powder followed the operation of the emetic. Evening. The ſkin hot ;—the pulſe quick ;—ſpirits cheerful. 4*th*, The ſkin moiſt and warm,—the pulſe frequent and ſmall,—the tongue dry, with a good deal of thirſt ;—the operation of the calomel upon the bowels ſevere. Evening. Better ;—the thirſt abated ;—the perſpiration copious ;—the pulſe full and free ;—bark to be given in quantity. 5*th*, Better ;—no thirſt,—no pain or complaint. Evening. The ſkin warm and moiſt ;—the pulſe ſmall and frequent ;—complains of internal heat. 6*th*, Slept well ;—the tongue red on ſome places,—white on others, or with coverings like a paſte of meal ;—the

pulſe ſmall and frequent ;—no return of appetite :—bliſters applied to the thighs. 7*th* and 8*th*, The progreſs of the diſeaſe advanced. 9*th*, Extremely low ;—the pulſe ſcarcely perceptible ;—the ſkin damp and clammy ;—the breathing performed by the muſcles of the abdomen ;—the bliſtered parts deeply livid ;—the general aſpect withered and dry ;—he died in the courſe of the day.—It was propoſed after the firſt remiſſion to have made a trial of the powers of bark, but the directions were not properly executed

November 25th. *D——y*, ſeized four days ago, with a paroxyſm of intermittent, of which he has had regular attacks, but his account is not diſtinct ;—at preſen the complains of headach ;—the tongue is foul, but moiſt ;—the ſkin is moiſt ;—the pulſe quick, frequent and ſmall ;—the countenance ſuſpicious.—Calomel ;—two ſtools. 26*th*, Eaſier ;—the tongue rough and foul ;—no appetite ;—the eye rather yellow ;—he ſtill complains of ſome headach, but, being a Pole by nation, his ideas are perhaps not clearly underſtood, as his French and German are both very barbarous. Evening. Headach increaſed,—chilline ſs,—great thirſt,—ſkin dry,—pulſe confined ;—cough with pain of the ſide. 27*th*, Headach continues ;—the tongue is clean,—the eye and countenance not ſatisfactory,—the aſpect dingy and withered ;—the pulſe ſmall and confined,—not preternaturally frequent ;—the body bound ;—ſkin dry. Evening. More cheerful. 28*th*, Slept tolerably well ;—the pulſe ſmall and confined ;—the

ſkin cool. 29*th*, Has not ſlept well;—the pulſe better;—the countenance ſtill unpleaſant;—no actual fever. 30*th*, No appetite;—upon the whole better. *December* 9*th*, Was diſmiſſed on the 5*th* as a convaleſcent, returned to-day under a paroxyſm of ardent fever. 10*th*, Pungent heat,—countenance withered,—ſkin dry and parched,—hiccup. 11*th*, Tongue parched and dry;—countenance withered and dry,—bliſtered parts livid and dry; pulſe ſmall and low;—hiccup ceaſes and returns by intervals. 12*th*, Tongue moiſt,—clean;—the pulſe regular,—not weak;—the ſkin dry,—cool;—the eye and countenance more animated;—the hiccup continues. 13*th*, The ſame. 14*th*, Died in the courſe of the night, after bleeding from the noſe and ears.

December 1*ſt*. *A——l* attacked, about noon, with ſevere headach, pain in the bottom of the eyes, ſome degree of chillineſs and great diſtreſs. Evening. Delirious, with marks of conſiderable vaſcular excitement. 2*d*, Vomited much in the night;—the delirium gone, but the headach ſtill ſevere, with uneaſineſs at ſtomach;—the heat above natural;—the pulſe quick, tenſe and frequent. Evening. Has had three copious evacuations, from drink of cream of tartar;—the fever is abated;—the headach is eaſier;—the pulſe is calm, but the veſſel is ſtill tenſe;—the perſpiration ſmall and partial. 3*d*, Much uneaſineſs at ſtomach and in the bowels,—inflation;—tongue ſlimy and foul;—the thirſt great;—the countenance duſky;—the eyes painful and

red. Evening. The countenance brighter;—the pain of the head and eyes ſtill diſtreſſing;—ſeveral evacuations downwards;—no perſpiration:—warm bath and beverage of cream of tartar. 4*th*, The fever returned in the night with ſymptoms of great ardency, burning heat of the eyes, &c. Evening. The fever is ſubſided;—the ſkin is moiſt, and the nauſea is leſs diſtreſſing. 5*th*, Reſted well;—the ſkin ſoft;—the pulſe ſlow, but confined; the tongue foul and ſlimy;—the thirſt is not great, but there is no return of appetite, and he ſtill complains of pain and uneaſineſs at ſtomach;—he has had numerous evacuations downwards. 6*th*, The fever returned in the night with great heat and ſevere vomiting of four matters,—a ſenſe of burning at ſtomach,—and nauſea on every change of poſture;—the pulſe is ſlow and regular, but not ſtrong; the ſkin is cool, dry and duſky. 7*th*, Much the ſame. 8*th*, The fever returned in the night; he ſpits blood, which ſeems to be an exudation from the mucous membrane of parts about the throat. 9*th*, The pulſe ſlow, ſoft and regular,—not weak;—the ſkin warm, moiſt;—the lips moiſt and red;—the tongue clean, but thirſt ſtill continues;—the eyes and ſkin yellow, but not of a deep tinge;—the luſtre of the eye returning; eruption about the mouth,—ſome deſire for bouillon. 10*th*, The ſpitting of blood continues; the appetite not returned. 11*th*, The ſame. 14*th*, From the operation of an emetic he threw up a great quantity of billious matter and recovered rapidly.

N. B. The three caſes above, furniſh examples of a form of diſeaſe of a remitting type, terminating rapidly in death by oppreſſion like the more formidable ſpecies, or ſhowing marks of yellowneſs and exudations of blood in recovery not unlike the concentrated diſeaſe called Yellow Fever.

CHAPTER V.

Deſcription of Fever.

THE general character of the *Claſs Fever* is not perhaps ſo comprehenſively and ſo explicitly defined in the writings of authors, as to include and expreſs every condition of febrile action. The definition of Dr. Cullen is unqueſtionably the moſt preciſe, and the moſt ſcientific; but though the conditions expreſſed in that definition mark the undoubted exiſtence of a fever, yet there are modes of action of a febrile cauſe, under which ſome of the circumſtances there mentioned are not clearly diſcerned. Horror or a ſenſe of cold is a common ſenſation in the commencement of fever; yet it happens ſometimes that this ſenſation is not perceived,—perhaps does not actually take place;—if ſo, horror is not eſſential to the exiſtence of the diſeaſe. In the ſame manner, increaſed frequency of pulſe is often preſent, and is uſually eſteemed an indication of the action of a febrile cauſe, yet there

are inſtances of febrile action, where this increaſed frequency of pulſe is not obvious: hence theſe two ſymptoms are not abſolute,—they are only relative to a certain condition of action, but not indiſpenſable in the chain of febrile operation;—they are ſometimes wanting, at leaſt not obſerved in the commencement of the moſt concentrated or ſuddenly fatal forms. But though a ſenſe of cold and an increaſed frequency of pulſe do not conſtitute indiſpenſable parts, in the action of the cauſe of fever, yet an irregular and irritated, an impaired and diminiſhed, or, in ſome ſhape, an altered condition of the alacrity of motion and vigour of the limbs is not perhaps ever abſent. Thus an impeded or ſuſpended, an irritated or irregular action,—a changed condition of the ſtate of the moving fibre, ariſing ſuddenly and acting generally, marked by its effects upon the functions of health and vigour, ſeems to conſtitute the primary and conſtant feature of the operation of a febrile cauſe.

The cauſe of fever ariſes from different ſources, and according to a variety of circumſtances affects the body in different manners, yet certain generalities belong to all. Thus the action of a febrile cauſe, from whatever ſource the cauſe may proceed, is obſerved to obey certain laws of riſe and decreaſe at given periods,---in other words, fever conſiſts of a ſeries of paroxyſms repeated at different intervals. The tertian, or period of forty-eight hours, ſeems to be the hinge of febrile revolution; and the compounds of the tertian appear to be ſo multiplied on

ſome occaſions, as to fill up or occupy every portion of time, producing a fever apparently continued in form—or confounded in its periods. This general prevalence of a tertian period explains the noted connexion of odd days with the changes and terminations of fever;—the changes and terminations, which ſometimes happen on even days, depend upon the exiſtence of a compound form, and are explained, according to the fundamental principle of febrile revolution, by a ſimplification of the form. But beſides, that the riſe and fall of febrile action is ſubject, during the continuance of fever, to obey laws of periodical movement, the great changes,—the criſis or final termination,—the ceſſation of one mode of action and commencement of another, are alſo under the rule of period, or defined portions of time. Among theſe the ſeventh day is moſt remarkable, either for final termination or change of action; for, as a fever, of the duration of ſeven days, conſiſts of a repetition of more or fewer paroxyſms during that duration; ſo a fever, of ſeven weeks, conſiſts of various changes of action,---of ceſſation of one mode and commencement of another at certain intervals,---moſt commonly at the interval of ſeven days. The ſeventh day, on what cauſe ultimately depending cannot be known, is a noted day of revolution;---it ſeems in fact to be the critical period of fevers of diſtinct and regular form; for though changes and terminations happen at other times, they are comparatively few in number and rarely final in event. Of fevers, the ſlighteſt

and the moſt violent are uſually of the ſhorteſt duration; for where the cauſe is of inferior force, and the power of reſiſtance ſtrong, the derangement effected being inconſiderable or without a ſtable baſis, health is often reſtored on or before the third day; where the cauſe is of concentrated force, the power of reſiſtance generally or locally weak ſo as to be eaſily overwhelmed, or the principle of irritability, in ſuch a condition, as to be eaſily exerted to inordinate or increaſed action, a change or termination —favourable or fatal, often takes place at the ſame period;---in ſome caſes, termination or death happens earlier than even this, but where death happens at an earlier period, it will ſeldom be found that a diſtinct febrile action has been properly eſtabliſhed.

But beſides the above mentioned riſe and fall of febrile action at certain periods, there alſo exiſt general modes of that action, common to the operation of the cauſe of fever, whether that cauſe may have proceeded originally from an endemic or a contagious ſource. In a ſtate of full health and vigour, the moving fibre of the human body regularly and alternately acts and ceaſes to act; on this alternate action and reſt ſeems to depend the fundamental operation of life,—an operation eſſentially diſturbed by the action of a febrile cauſe, not however diſturbed at all times after one manner and one form: Force or concentration of cauſe, perhaps modification independent of actual force, but oftener aptitudes and circumſtances of ſubject produce ſhades of

great variety: a clear explanation of the cauſes of theſe varieties lies not perhaps within the reach of comprehenſion; but the fact will not be diſputed by thoſe who have conſidered the ſubject with attention, that the reputed cauſe of fever, endemic or contagious, ſhows its action, at one time under the form of ulcer of the extremities, of eruptions on the ſurface of the body, diarrhœa, dyſentery or flux, at another time under the form of genuine fever, various in degree and aſpect,—and changing in various manners in the progreſs of the courſe.

The cauſe of endemic and contagious fever is radically different, but the mode of action, on the human body, is in many reſpects ſimilar. In deſcribing the gradations and forms of this action, it will be convenient and uſeful to claſs the appearances, according to certain general and prominent features, uſually combined together and ſeeming to depend upon certain conditions or primary modes of operation. The deviations from health, ariſing from the action of a cauſe of fever, are different in kind and degree and are differently combined, but upon the whole, the principal modes may be referred to action of the moving fibre, diminiſhed in force and energy, ſuſpended or impeded in uſual range of freedom, diſturbed in time—more frequent or more ſlow; to a mode of action irritated beyond the common degree of irritation, diſturbed in time—quick and frequent, but without freedom and effective force;—this laſt mode is complex, and the appearances ariſing from it are fluctuating, irregular,

and often ſeemingly of oppoſite natures. Theſe different forms of action ſeem to have their periods in the ordinary courſe and d urationof a fever,—the impaired or ſuſpended mode is perhaps primary,—it is alſo final where the diſeaſe proves fatal: irritated motions ariſe under certain conditions, terminate in increaſed action which terminates in recovery of health; or irritated motions, failing to eſtabliſh an effective re-action, ſuſpenſion or oppreſſion recurs—general or local,—and death is the conſequence. Theſe modes, beſides being different in kind and degree, are alſo ſuch as to deſerve the name of general at one time, the name of partial, at another; ſometimes they appear generally in the whole body, though different in degree, ſometimes more particularly in one ſyſtem or ſeries of parts, ſometimes chiefly in one organ, or the functions of one organ, and at other times, in parts of an organ only, and partially in its functions.

SECT. I.

Deſcription of Contagious Fever, as it appeared in the Britiſh Army, in England, Holland, and Ireland, during the years 1793, 1794, 1795, and part of 1796.

Claſs I. HISTORY of that form of fever, in which marks of ſuſpended or impaired action are more conſpicuous than of action increaſed in force or irregular in time. This form has various ſhades and

degrees, is of different duration and liable to many changes during the courſe.

1ſt, Slight in degree. The commencement of this form is uſually marked by a ſenſe of diſagreeable feeling at ſtomach, nauſea, vitiation of taſte, coldneſs of long continuance, an increaſed ſenſibility to cool air, or want of warmth rather than horror or chillineſs, dimneſs of ſight, giddineſs, dulneſs of perception, languor, pains and aching of the joints, impaired and feeble action of the limbs, a ſad, deſponding and lifeleſs aſpect of eye and countenance; the pulſe is ſmall,—ſometimes, when ſuperficially attended to, ſeemingly not much changed from its natural ſtate, carefully examined appearing to be feeble, languid and confined, ſometimes—but not always, more frequent than natural, ſometimes, but rarely, more ſlow: the degree of heat is moderate,—judged by the ſuperficial touch of the ſurface and extremities, it does not ſeem to be above the natural ſtandard,—upon the hollow parts of the trunk or on preſſure, it appears to be pungent, though not ſtrong: the ſtate of the ſkin is uſually dry, ſometimes clammy and greaſy: ſecretions are impaired, with great deficiency of alacrity in the functions.

The above foundations of derangement being apparent in the firſt twenty-four hours of the diſeaſe, the greater number of ſymptoms increaſe in degree, or ſuffer ſome change of form during the continuance of the courſe: the appearances of the tongue are irregular, ſometimes the tongue is moiſt and little changed, ſometimes it is rough and moiſt, or

with a thin coat firmly adhering, ſometimes white, ſlimy and foul,—it is ſeldom dry in this ſtage of the diſeaſe, but it is not unfrequently covered with a ropy ſaliva, ſmooth and without papillæ:—ſome degree of nauſea is often preſent, but there is ſeldom any vomiting; the body is ſometimes open, ſometimes bound,—when open, the evacuations are for the moſt part ſmall and ineffective: there is uſually an unpleaſant taſte in the mouth,—or want of taſte, almoſt always a dry or a greaſy ſkin, a ſullen aſpect, a pulſe not much changed in time, but feeble and unenergetic in the ſtroke; pain of the limbs and joints, like the achings in the cold ſtage of intermittent, ſometimes tenderneſs of the touch: bad reſt,—dreams and wanderings often diſturb the ſleep. At a certain period, ſometimes on the third, oftener on the fifth, and ſtill oftener on the ſeventh day, theſe ſymptoms undergo a great and material change; the action of the ſyſtem, particularly the action of the arterial ſyſtem, developes, ſecretions are reſtored and the ſigns of health return; or inſtead of health, a new train of morbid action commences. The cauſe, which had hitherto only in a ſlight degree impaired the energy of the vital functions, either by a ſudden acceſſion of power or by an increaſe of aptitude in the ſubject, acts with vigour and ſometimes rapidly overwhelms life. Where the action is general in the ſyſtem, the progreſs is uſually more gradual and the term of exiſtence is longer protracted; where the action is par-

tial, the functions of parts become oppreſſed and death takes place ſpeedily.

The ſigns of gradual extinction are chiefly found in a pulſe, ſmall, weak, ſometimes frequent and always feeble, wrapped up as it were in itſelf, retiring from the ſurface and extremeties of the body, irregular, intermitting and finally failing,—in a correſponding decline and failure of animal heat, in a ſtate of ſkin dry and impervious, ſometimes greaſy, clammy and dirty, ſometimes purpliſh or livid,—in ſecretions impaired or ſuſpended, in drowſy torpor, but diminiſhed ſleep, with an imperfect poſſeſſion of intellect: the tongue during this progreſs, particularly where the progreſs is not rapid, is often black and dry, covered with a ſooty pellicle, ſometimes ſmooth, clear and gloſſy, the lips too are generally dry, and a black cruſt or pellicle ſometimes covers the teeth and gums. Where the action is partial, the appearances are more irregular:—irritated motions are variouſly combined with ſuſpended or diminiſhed energies, and according to circumſtances the ſymptoms are of great variety, and in ſome reſpects oppoſite in their natures. In one caſe, the head is principally affected:—delirium, different in degree and different in kind, occupies the chief notice; in another, affection of the moving powers gives riſe to a multitude of alarming ſymptoms, ſtartings, tremors, convulſion, &c.; the cheſt ſuffers principally in one, ſo that the functions of the lungs become ſuffocated and oppreſſed; the ſtomach and alimentary canal have a great ſhare of the ſufferings

in all and at all times; in the latter ſtages theſe organs often ſeem to loſe power in a more eſpecial manner,—the abdomen becomes inflated,—involun- purging takes place, accompanied on many occa- ſions with involuntary or unconſcious diſcharges of urine.

It likewiſe happens frequently at this period of change, that, inſtead of ceſſation of diſeaſe, a new train of morbid appearances ariſe, which are differ- ent in aſpect from the preceding, and lead for the moſt part to different iſſue,—they are chiefly con- ſpicuous in the changed action of the vaſcular ſyſtem; the pulſe, from ſmall, weak and confined, deep, and as it were ſunk in the arm, becomes gradually open and full,—the whole ſyſtem ſeems to fill and expand, or the tide of circulation flows freely to the ſurface and extremities of the body, the mind alſo becomes cheerful and even gay, de- lirium of the gentle, but lively ſort is a frequent occurrence, and often appears to be a leading fea- ture; ſleep is found, or diſturbed only by pleaſant fancies and wanderings, the energy of the functions is reſtored, the ſecretions reſume their natural courſe, and marks of criſis are generally decided and final. During this gradual progreſs to health, the tongue is uſually dry,—a coat or covering forms upon it, becomes thick and ſeparates at the critical period, moſt uſually the fifth or ſeventh from the new train of action.

2*d*, *Aggravated in degree.* Appearances, in the more aggravated degrees of this form of febrile

action, vary according to the ſeries of parts principally affected,—the different ſhades are painted in the countenance. The ſigns of the commencement are not very different from thoſe of other fevers, viz. diſagreeable ſenſations at ſtomach, nauſea, flatulence, liſtleſſneſs, languor, feeble action of the moving powers, ſenſe of cold, or want of natural warmth, headach, from heavineſs and confuſion, or mazineſs as the ſoldier uſually terms it to a degree, which gives the impreſſion of being knocked down by the blow of a hammer,—a ſtupor like that of deep intoxication,—a total inability of holding up the head. The appearance of the eye and countenance indicates ſtrongly a material deviation from health, but an accurate picture is not eaſily conveyed in words; the eye is ſometimes gloſſy,—the look vacant and idiot-like, torpid, ſad and deſponding, the countenance collapſed, dry, and withered like a plant nipt by froſt, or failing from want of rain, ſometimes flaccid, and dirty, as if waſhed in greaſy water, ſometimes full, ſwollen, torpid, and inanimate, like a ſtatue, ſometimes lurid, dark and grim, reſembling a piece of mahogany;—this laſt is often connected with heavy breathing, deep ſighing and ſtricture of the cheſt.

The ſymptoms above mentioned appear in the firſt twenty-four hours, and increaſe in degree, according to their ſeveral forms, for different ſpaces of time,—three, five, or ſeven days. The countenance, during this period, becomes daily more flaccid, withered and dry, more dirty and greaſy, more ſwollen

and inanimate, more lurid and dark ;—in all, there is a dufky hue, with a lighter or deeper fhade of yellow ; the changes of the eye obferve the fame rule of progrefs,—the veins become large, and the motions are languid with confiderable changes of colour ; the pain of the head, if fevere in the commencement, is often changed at a certain period to a fenfe of mazinefs or confufion,—a want of power to command thought. There are fometimes mutterings and wanderings during the night, with want of fleep, but delirium, properly fo called, is not common in this ftage,—where the courfe is rapid, it fometimes precedes convulfion,—it is often the fign of change of action and marks the commencement of a developement of the energies of the vafcular fyftem. The pulfe in this form of fever does not offer much information to fuperficial obfervations ; it is many times little altered from what it is in perfect health, fometimes neither more frequent, nor more quick, but generally, when minutely attended to, lefs expanfile,—without force of contraction or free delatration ;—a want of energy of ftroke, a defect of irritability feems to characterize it when clofely examined,—curforily noticed, it often feems neither fmall nor weak. This nearly natural ftate of pulfe continues with more or lefs variation for fome time ; at a certain period it becomes frequent, quick and active, free and expanfile ; or the torpor increafing, it wraps itfelf up, withdraws from the furface and extremities and finally fails. The ftate of animal heat, another of the figns from which an

opinion is uſually formed of the nature and degrees of fever, affords little remark to common notice. In touching the arm lightly, the heat ſeldom ſeems to be increaſed, in preſſing it cloſely, it is often found to be cauſtic and pungent,—unpleaſant, and differing from the nature of warmth,—it is deep ſeated,—irregularly diffuſed,—concentrated about the præcordia,—deficient in the extremities.—The ſkin, correſponding with the aſpect of the countenance, is ſometimes dry and impervious, flaccid and withered, ſometimes dirty, greaſy and clammy, ſometimes livid, and in a manner marbled about the tendinous parts,—the knees, feet and hands, beſpotted with petechiæ on ſome occaſions, and on many ſore, or tender of the touch: gangrenous ſpots are not uncommon on the feet, hands, knees, noſe and ears; extenſive and large mortifications ſometimes make their appearance on other parts; pains, or achings, like thoſe in the cold ſtage of intermittents, are common and diſtreſſing. Some idea of the ſtate and progreſs of fever may be, and uſually is formed from the aſpect and condition of the tongue. In ſeveral inſtances, the tongue does not appear to be materially changed, being moiſt, and with only a thin covering of mucus, in others, it is moiſt, ſmooth, and without the ordinary prominence of papillæ,—it is ſometimes rough, but cannot be ſaid to be foul, at other times it is covered with a mealy, milk-white paſte, of different degrees of thickneſs, the mouth overflowing, at the ſame time, with a ropy ſaliva:—ſimilar alſo to the aſpect of the countenance, the

tongue is ſometimes torpid in its motions, cold and pale, or large, ſwollen and livid or leaden coloured. In the progreſs of the diſeaſe, the coat, by which the tongue is covered, uſually becomes thicker, ſometimes dry, rough, brown, and even black: about the period of criſis, termination or change—this covering looſens and ſeparates at the edges, and at laſt through the whole extent; the tongue thus becomes clean, but if the diſeaſe runs on through another period, it turns rough, dry, often black, covered with a black cruſt or pellicle extending ſometimes to the teeth and gums; ſometimes it remains clean, ſmooth, gloſſy, red and parched. Thirſt often bears a correſpondence to the ſtate of the tongue and fauces; yet thirſt is ſometimes intenſe, without the correſponding appearance, or inconſiderable, where according to the ordinary rules it would be ſuppoſed to be great. The taſte is changed, or depraved,—there is ſeldom a reliſh for food, though food,—at leaſt ſpoon meat is ſometimes ſwallowed with indifference; nauſea is not uncommon, but vomiting is rare; yet vomiting ſometimes happens in conſequence of a change of determinations. The functions of the alimentary canal are much diſturbed; in ſome caſes there is coſtiveneſs, even reſiſting ſtrong purgatives, in others there is purging, but the evacuations are ſeldom effective,—they are watery or ſmall;—ſevere gripings or pains are not uncommon:—fullneſs, tenſion and inflation of the hypochondria, and, towards the latter periods, involuntary ſtools are among the ordinary appearances.

Secretions are generally diminiſhed, and among theſe, the ſecretion of urine is ſcanty, with complaint of pain and difficulty in rendering it. There is uſually a want of reſt in this form of diſeaſe, at leaſt a want of refreſhing ſleep, but anxiety, toſſing and change of poſture, are by no means common; there is however, on many occaſions, a ſenſe of ſtricture on the cheſt,—a dry, and teazing cough, often alternating with affection of the head.

The foundations of the above derangements being laid in the commencement of the diſeaſe, the ſtructure advances to a given point, with different progreſs. Sometimes on the third, oftener on the fifth, and oftener ſtill on the ſeventh, the action of the ſyſtem becomes excited, the powers of life emerge, and criſis takes place; or fever being in ſome manner ſuſpended, ſufferings abate or ceaſe, recovery goes on for a few days, when diſeaſed action recurring ſuddenly, life is overwhelmed or brought into danger; or further, inſtead of termination or ſuſpenſion of morbid action, the cauſe ſeeming to receive an acceſſion of power, or a change of direction at the above periods, the vital energies become generally or locally oppreſſed, and death is the conſequence.

Claſs II. IRRITATED MOTIONS. The primary action of the cauſe of fever is obſcure; but, at a certain and early period, action, irritated, irregular and apparently increaſed, is ſo conſpicuous in the vaſcular ſyſtem, with unuſual commotion of the moving powers, as to characterize a form of fever, which

deſerves particular conſideration from the multiplied variety of its appearances, and the numerous accidents which happen to life from its tumultuary diſturbances.—The attack of this form of diſeaſe is uſually ſudden, the ſenſe of cold or even horror is conſiderable, and frequently alternates, during the firſt hours, with ſenſations of burning heat; the headach is often intenſely ſevere, particularly the pain of the forehead and temples,—it is frequently preceded by giddineſs, vertigo and temporary loſs of ſight; the eye is often muddy, confuſed and red, ſtaring and prominent, it ſometimes ſeems to blink, or ſhun the light; the countenance is fluſhed, or rather overcaſt and grim, often agitated and confuſed; the tongue is generally foul, covered with a mealy or milk-white paſte,—when moved it is ſometimes tremulous; the thirſt is great; the ſenſations at ſtomach unpleaſant; naufea is not unuſual, and even vomiting occurs ſometimes, pains in the legs and joints are ſevere, pains ſhooting along the legs, ſhoulders and arms in repeated exploſions, or with ſenſations of gnawing, and as it were tearing, are ſometimes extremely diſtreſſing; a general ſoreneſs or tenderneſs of the touch is not uncommon, in all caſes, however, different in its nature from the tenderneſs or pain of rheumatiſms; the uneaſineſs and anxiety are frequently great; agitation, tremors, ſtartings, convulſive motions, ſtricture of the cheſt, irregular evacuations of the bowels, with gripings, ſevere pains and ſpaſms, are occaſional, but fluctuating ſymptoms; the ſkin

is uſually hot and dry,—when the body is preſſed cloſely, the heat often appears cauſtic and fiery, deep or concentrated,—it is unequal in different parts of the body; the pulſe is uſually quick and frequent; irritation and motion are increaſed, but force and energy are wanting,—the uſual freedom of the ſtroke is confined; ſecretions are irregular, and generally impaired.

Theſe ſymptoms, which appear in the firſt twenty-four hours of the diſeaſe, increaſe with ſome variety of progreſs to certain periods, at which time changes or terminations, ſometimes favourable ſometimes fatal, are obſerved to take place. The modes follow the ordinary rules in fever; in one caſe, the action of the vaſcular ſyſtem becomes vigorous, the arterial pulſations expand and final termination is the conſequence; in another, the irritated motions of the arteries abate, or ceaſe, the courſe of the diſeaſe ſeems to be ſuſpended, ſome portion of health returns,—in ſome inſtances imperceptibly eſtabliſhed, in others ſuddenly deranged, by a recurence of morbid action; in a third, the irritated or increaſed action ſubſides rapidly, while the vital energies being exhauſted generally, or organs locally deſtroyed, death enſues with more or leſs variety of appearance. The different events are, in ſome meaſure, connected with certains days in the following manner. In the more concentrated forms, the irritated action often ſubſides on the third day, ſometimes fatally, ſometimes indeed with hopes of returning health, but with ſtill greater ſuſ-

picions of ſudden and dangerous recurrence. In forms of ſomewhat leſs violence, the changes of the fifth have ſimilar iſſue. The ſeventh is the great critical day of regular fevers of moderate violence; the terminations are oftener final, or changes more diſtinctly marked than on the others; at this period, the powers of life ſubſide rapidly, emerge ſpeedily, or a new train of action commences, in the progreſs of which the action of the vaſcular ſyſtem is developed and health is finally eſtabliſhed.

The appearances, in this fever of irritation, are, as they might be expected to be, very irregular; pains and ſpaſms in different parts of the body are ſevere, the pulſe is irritated, and ſometimes excited to a high degree of action, the heat is ardent, cauſtic, —ſometimes making an impreſſion like actual fire, the thirſt is great, the tongue dry—ſometimes rough, foul and black; ſtartings, tremors, convulſive twitchings are frequent; the breathing is often oppreſſed,—ſtricture and affection of the cheſt frequently alternate with delirium and affection of the head: Vomiting ſometimes occurs,—prodigious in quantity and irreſtrainable, accompanied with a ſmall pulſe and cold ſkin;—on ſome occaſions, the ſame is the caſe with purging; the urine is ſuppreſſed,—ſometimes it is bloody; the functions of the liver are alſo ſuffocated in ſome inſtances,—or there are appearances of deep jaundice: hæmorrhage from the noſe, though not common, ſometimes takes place; and gangrene or blackneſſes, ſometimes of con-

ſiderable extent, appear on the extremities, or other parts of the body.

Claſs III. Local Fever. The cauſe of fever generally affects the ſyſtem extenſively, but on ſome occaſions the principal action ſeems to be excited upon diſtinct organs, or upon the functions of organs;—the dyſenteric and peripneumonic forms are the moſt common and the moſt formidable. In theſe forms, pains, ſpaſms and marks of irritation are ſometimes conſpicuous; ſometimes, more particularly in the dyſenteric form, the action of the arterial ſyſtem is very little diſturbed; the courſe of the peripneumonic form is uſually the moſt rapid, the dyſenteric ſometimes continues ſeven days or a fortnight, without very materially impairing the functions of the general ſyſtem; but it is common to both, that the cauſes, which change or repreſs the local diſeaſe, ſeldom fail to diſorder the exiſting economy of the frame: Thus peripneumonic fever or affection of the cheſt is often changed to delirium or affection of the head; dyſentery changed, or ſuddenly repreſſed, is alſo followed by general fever, delirium, ſpaſm, and convulſion.

The above are the more common forms and appearances of the fever, which prevailed among the Britiſh troops, in the different ſervices on which the author was employed. It was remarked before, that the principal diſtinction of fever conſiſts, in an aſſemblage or train of motions irritated to an unuſual degree, or deficient in ordinary force and energy:—theſe are not however ſo pure and ſimple

in all cases as here described; one character may be observed to prevail upon the whole, but it is more or less mixed on different occasions;—the motions, for instance, seem irritated in one part of the body, and torpid in another at the same time, and the aspect of the general mode of action changes repeatedly during the continuance of the disease. In the commencement the motions are sometimes greatly irritated,—the fever, in common language, runs high; at a certain period this irritation subsides, and a course of deficient energy or torpor ensues; on the contrary, torpor and deficient energy are sometimes conspicuous in the early stage; at a certain period the motions become irritated, the action is increased, the powers of the circulating system expand, and the energies of life are restored.

It is not pretended to determine the causes upon which the varieties of diseased action in fevers depend, but it will not be without use to notice the circumstances, with which certain modes are primarily connected, or from which they seem accidentally to change. In encampments, in cool and wet weather, under deficiency of clothing, tedious and irksome confinement, the dysenteric is often the most conspicuous form;—this often ceases on removal to warm and dry lodging; genuine fever then arises;—in crouded barracks, in crouded ships, among subjects depressed in mind, inactive in body, the form of fever is usually a form of deficient energy,—of longer and shorter duration, and greater or less intensity according to a variety of accidents; in

the moſt concentrated ſources of contagion, as in crouded hoſpitals, the action of the cauſe is ſtrong, ſometimes repreſenting, in its attack, a form of apoplexy, which, where the habit poſſeſſes little power of reſiſtance, rapidly overwhelm life. Thus, upon thoſe who live in confined air, and who do not exert themſelves in body or mind, the cauſe of the diſeaſe ſeems to act by an operation of depreſſion or ſuſpenſion, and death takes place, often without much ſtruggle or diſturbance; in thoſe, who, expoſed to the ſame cauſe go abroad into the open air, and, more particularly, who are active in body and mind, the febrile motions are irritated, irregular, frequently increaſed in force, terminating in eſtabliſhed re-action, or deſtroying the organization of parts by violence of effect. In crouded hoſpitals, where dirt, naſtineſs and bad air prevail, the relapſes of the diſeaſe are frequent;—the forms indicate deficient energy in the general ſyſtem, or local derangement from accidental weakneſs;—the events are often unfortunate:—under a free ventilation of air and the advantages of perſonal cleanlineſs, the action in relapſe is irregular; pains, ſpaſms and purging, come ſuddenly and ſuddenly ceaſe; intermitting forms alſo occur often, but they do not obſerve the ſame regularity of period, as is uſual with pure endemics.

SECT. II.

Deſcription of the Concentrated Endemic of Tropical Climates, vulgarly called Yellow Fever; more particularly, the Fever of St. Domingo, as it appeared among Britiſh troops, in different diſtricts of the Iſland, during the years 1796, 1797, and part of 1798.

THE fever of the Weſt Indies, though ariſing from one general remote cauſe, ſhows difference of form, and, for the moſt part difference of action, in a ſtranger and native or old reſident in the climate; and beſides this general and marked difference in the fevers of ſtrangers and natives, there are alſo differences among the individuals of the ſame claſs, depending upon original qualities of conſtitution, or ariſing from one or other of the numerous adventitious cauſes, to which men are individually expoſed.

The cauſe of endemic, in the ſame manner as the cauſe of contagious fever, ſeems to manifeſt itſelf after two general modes of operation, viz. 1. by ſuſpending, impeding or impairing the energy of the moving fibre; 2. by irritating or exciting to inordinate and irregular action. The ſame parts, or ſeries of parts are affected by theſe different actions,—the modes often appear different in different parts of the ſyſtem, at the ſame time, and changes of the general form occur at certain periods, during the continuance of the diſeaſe. Diſeaſe is deſcribed from obvious appearances, and, as appearances claſs themſelves under certain forms, perſpicuity and or-

der require that the endemic fever of the Weſt Indies be deſcribed according to the following diſtinctions.

I. Into a form, where irritation, tumult and excitement of the vaſcular ſyſtem are chiefly conſpicuous in the early period;—local derangement and diſorder of important functions in the latter.

The above form of diſeaſe occurs moſt commonly in vigorous and athletic habits, and it often occurs, under the circumſtances of preceeding deſultory exertion, or tranſgreſſions of the rules of temperance. The invaſion appears upon a general view to be, for the moſt part, ſudden or inſtantaneous, but, upon accurate inquiry, languor, headach or ſome obſcure deviation from health, will uſually be found to have preceded the formal attack, by twelve hours —ſometimes by a longer ſpace. Headach, if not actually the firſt, is among the firſt ſymptoms of this, as of other fevers; and the nature of the headach is different, in different ſubjects, ſometimes it is almoſt inſupportable,—confined more particularly to the forehead and temples, accompanied by ſenſations of tightneſs over the eyes, tugeſcence and ſtarting; ſometimes the pain is more generally diffuſed, dull and obſcure; but it, for the moſt part, differs from the headach of ordinary cauſes, though the difference is not eaſily defined. Headach is almoſt always preſent in the commencement, in ſome degree or other; it ſometimes abates in the courſe of the firſt twelve hours, frequently in the firſt forty-eight, and almoſt always before the termina-

tion of the third day. During the ſeverity of the pain, the forehead is ſometimes hot and burning, ſometimes cold and clammy. It happens alſo, and not unfrequently, that together with, or inſtead of headach, the attack is uſhered in by giddineſs, vertigo, drowſineſs, or ſtupor like deep intoxication: fits of apoplexy, hyſteria or tetanus are obſerved ſometimes, but they are upon the whole rare, and by no means characteriſtic of peculiarity. The ſtomach, one of the organs primarily and principally affected in the commencement of fever, is, for the moſt part, peculiarly affected in the early ſtage of this diſeaſe; vomiting is not common, but nauſea, with a taſte of copper in the mouth, is uſual, as are anxiety, flatulence and other diſtreſſes, not eaſily deſcribed, as not referable to diſtinct heads. The ſenſations of liſtleſſneſs, languor and averſion to motion, common in the commencement of fevers, are preſent here, but have not any peculiar qualities. When the invaſion is ſudden, the debility or loſs of power is more complete. Alternate chills and fluſhings of heat are not unuſual; in ſome caſes they occur at intervals for the firſt twelve hours; the ſenſation is unpleaſant, but the cold is ſeldom ſtrong, or amounting to rigour; in others, chills are not perceivable, the ſenſation of heat prevailing from the beginning. Together with theſe, the eye and countenance are confuſed and agitated, the pulſe diſturbed, frequent, ſmall, heſitating, or ſeemingly oppreſſed under the immediate attack.

The following appearances are noticed during the

firſt twelve hours, though with ſome difference of order and degree in different ſubjects. The eye and countenance expreſs ſome marks of peculiarity, —known to actual obſervers, difficultly conveyed in deſcription. The eye is ſometimes watery, ſad and deſponding, ſometimes agitated, red and diſturbed, as if ſuffering from the ſmoke of green wood; the pupil ſometimes appears to be preternaturally contracted, ſometimes preternaturally dilated, but its appearances cannot be ſuppoſed to afford a criterion or diſtinguiſhing mark of the diſeaſe; the eyeballs are often much agitated, ſtaring and protruded. The countenance is uſually, but not always fluſhed; it is generally clouded, agitated, expreſſing a ſecret ſuffering of diſtreſs, not indicated by other external ſigns. The tongue is generally white, ſlimy and moiſt, ſometimes apparently clean, or covered with ſo thin a covering of mucus, that the red ſurface below ſhines through it, forming a colour reſembling that of lead, ſometimes it is ſmooth, it is ſeldom dry and rough. Thirſt is irregular and uncertain; where nauſea prevails, it is ſeldom great, yet intenſe thirſt and nauſea ſometimes meet together. The pains in the joints, limbs and back are often ſevere and diſtreſſing; they reſemble pains in the cold ſtage of intermittents; the pains of the calves of the legs are ſometimes acute, the muſcles ſeeming to be in a certain ſtate of ſpaſmodic action. The pulſe is uſually frequent, ſmall, confined, concentrated or deep, as oppoſed to expanding and open. It is ſometimes agitated, vermicular, confuſ-

ed in an uncommon manner, almoſt always it is much diſturbed. The heat, during the firſt twelve hours ſeldom appears great, if the ſkin be touched lightly, more cloſely preſſed, the ſenſation of heat is cauſtic and pungent. The ſkin is uſually dry; if damp, it imparts the idea of a ſpaſm exiſting on the ſurface, for perſpiration, with expanding pulſe and relief from ſufferings, rarely takes place. If the ſkin be moiſt, the moiſture is clammy, as in agonies,—different from the warm and fluid moiſture, which follows a relaxation of extreme veſſels. To eſtimate this properly is a matter of ſome importance in forming an opinion of prognoſtic. In thoſe ſweats, which terminate the paroxyſms of the remitting fevers of natives or ſeaſoned men, the pulſations of the arteries become full, expanding, and as it were riſe to the ſurface, the perſpiration is fluid, copious and general, with ſoftneſs of the ſkin, and with the ſenſation as if a load of weight and diſtreſs were removed from the ſyſtem, ſecretions, are, in ſome meaſure, reſtored, and the countenance becomes to a certain degree cheerful and ſerene. In the abatements which take place towards the cloſe of the firſt twelve or twenty-four hours of this diſeaſe, the appearances are often flattering and ſometimes ſo ambiguous, as to deceive an unexperienced practitioner; but the following marks will, in ſome meaſure, help to note diſtinction; the ſweat is ſeldom copious and general; it is, for the moſt part, confined to the upper parts of the body; it is not uſually fluid and free, but has ſomething of clammi-

neſs joined with it; the pulſe does not expand; an impreſſion of exiſting ſpaſm or confinement,—of imperfect dilatation and feeble contraction of the artery, ſtill remains. Yet in ſome inſtances, the changes are ſo material, the relief ſo evident, that it is only after much experience, that a perſon is brought to doubt of the preſence of remiſſion; indeed in people accuſtomed to climate, ſuch abatements may ſafely be eſteemed remiſſions and acted upon as ſuch, in Europeans, newly arrived in warm latitudes, they require to be regarded in a favourable light with much caution.

About the termination of the firſt twelve hours, the tumult and agitation deſcribed above in ſome degree ſubſide; the appearance of the eye, though not ſerene, is leſs wild and expreſſes a ſenſation of relief; the violence of the headach diminiſhes, or the nature of the pain changes; the countenance brightens; the patient, even the phyſician is often flattered with hopes of remiſſion,—but they are fallacious hopes and ſeldom of long duration. In the courſe of a very few hours at fartheſt, the ſymptoms recur with aggravation, and with qualities in ſome reſpects differing from the preceding. The pulſe, which, during the firſt twelve hours, was uſually ſmall, frequent, irregular or confuſed, becomes quick, hard, tenſe, more equal in time and force, but confined,—or without a free dilatation or energetic contraction of the artery. The heat of the body, particularly on the head and trunk, is burning, fiery and concentrated; if the ſkin be

touched lightly, it ſometimes does not appear to be uncommonly great, preſſed cloſely, it is often ſo intenſe, as to be endured with pain, communicating the ſenſation of actual fire, or of ſharp inſtruments darting into the fingers. Thirſt is irregular,—much connected with the ſtate of the tongue and ſtomach; where there is nauſea, with a moiſt and foul tongue, it is ſeldom great, at leaſt, if there be a deſire of drink, there is alſo an averſion to the act of ſwallowing;—where the mouth and tongue are dry, thirſt is generally intenſe. The pain of the head, which had in ſome degree abated, recurs again, but it recurs with ſenſations differing from the former; marks of increaſed determination are now evident, the pulſation of the temporal, and particularly of the carotid arteries is ſometimes ſo violent, as to cauſe the head and neighbouring parts to ſhake; there is alſo a ſenſe of fullneſs, weight and heavineſs through the whole head, ſometimes with drowſineſs and coma, but without the power of ſleeping; the recollection is confuſed, and not under command, but that derangement of the reaſoning faculty, properly called delirium, is a rare occurrence. The countenance is highly fluſhed, ſometimes dark and cloudy; the eye is muddy and inflamed; the urine is ſcanty,—ſometimes ſuppreſſed: the bowels are torpid,—difficultly moved by purgatives,—or moved by ſtarts,—the evacuations, watery and in exceſs, do not afford relief; the ſkin is generally dry, and the heat is unequal,—great in the trunk, as formerly obſerved,—diminiſhed, or deep ſeated on the extre-

mities. Sighing, deep breathing, anxiety, an undeſcribable fidgetting, or deſire of conſtantly changing poſture, without complaint of pain or ſpecified object, are common attendants of this ſtage of the diſeaſe; and theſe undefinable uneaſineſſes may be regarded, as the ſureſt ſigns of the exiſtence of concentrated or yellow fever.

The duration of this ſtate of general irritation is uncertain, ſometimes not longer than twelve or twenty-four hours,—more commonly thirty-ſix or forty-eight. The increaſed action of the vaſcular ſyſtem abates, ſometimes ſuddenly, ſometimes gradually; increaſed heat is not now perceived on the extremities, but it is ſtill ſtrong and ardent on the breaſt and at the pit of the ſtomach, eſpecially on preſſure; the pulſe becomes ſlow, frequently regular, ſeemingly full, and to ſuperficial obſervation like the pulſe of a man in health. The tongue becomes clean and red on the edges, but ſtill remain foul in the middle. The ſtomach ſuffers great diſtreſs; with a ſenſation of burning or internal heat, there is often a ſenſe of weight and heavineſs or oppreſſion,—a ſenſation of ſomething uncommon,—anxiety, hiccuppings obſcure and interrupted, nauſea or actual vomiting: the matter thrown up by vomiting is of a glutinous and ropy nature, but clear, and without admixture of bile; as the diſeaſe advances the quantity increaſes, and far exceeds in proportion the quantity of what may have been drank, —various darker coloured flaſhes float in it; the ſighing and deep breathing ſtill continue, but the gene-

ral fidgetting and hitherto ungovernable deſire of change of poſture abate ;—the diſtreſſes become local, more particularly confined to the ſtomach and epigaſtic regions. About the period at which the general irritation begins to ſubſide, a dingineſs, or light ſhade of yellow may, for the moſt part, be diſcerned about the neck and angles of the mouth, when the countenance is diſtorted or the patient ſmiles ;—yellowneſs does not as yet appear in the eyes.

The irritated ſtate of fever having arrived at a certain acme or height, a period of ſubſiding commences, the progreſs of which is more or leſs rapid according to a variety of cauſes. In ſome it does not exceed twelve hours ; in others it extends to twenty-four, thirty-ſix or forty-eight. As during the irritated ſtate of fever the general uneaſineſs and reſtleſſneſs were extreme ; ſo from the commencement of the ſubſiding ſtate, though local diſtreſſes continue or increaſe, a general torpor of body and indifference of mind are ſingularly conſpicuous. The pulſe abates in frequency and force, and gradually returns to a ſtate, which, ſuperficially obſerved, appears to be the pulſe of health, being ſlow, regular, apparently ſoft and full ;—more cloſely attended to, deficient expanſion,—imperfect dilatation and feeble contraction of the artery, may be diſcovered. This regularity of pulſe does not often continue long, nor does the ſtate deſcribed take place in all ; in ſome the pulſe remains ſmall and frequent throughout, though it almoſt always loſes

the irregularity of motion which diſtinguiſhed the early ſtage of the diſeaſe; where it has ſubſided to the uniform tenor which obtains in a ſtate of health, it does not often continue long without ſome change, it becomes hurried, irregular and diſturbed, —even intermits and finally ceaſes. The animal heat falls, rapidly or gradually, from an ardent to a natural ſtate, and at laſt retires from the ſurface and extremities. But beſides diminution of heat, as judged of by examination of the ſurface of the body, the circumſtances of the ſkin itſelf deſerve remark. The ſkin appears to loſe its natural ſenſibility, it becomes impervious, and ſeems, as if it were ſcarcely connected with the living ſyſtem; the colour, which from the commencement of the period of ſubſiding, had been gradually becoming more and more yellow, in the latter ſtages is often violet and livid,— in which caſe the pulſe is uſually ſmall, deep and oppreſſed. The vomiting, which during the tumultuary and excited ſtate of fever was ſeldom ſevere, becomes now copious and irreſtrainable, but it is not bilious; liquor or drink taken into the ſtomach, is rejected in a few minutes, ropy glutinous and intermixed with dark coloured flakes; theſe increaſe in number as the diſeaſe advances; the vomiting can ſeldom be effectually reſtrained or checked by the aid of the medical art, yet, unleſs in accidental inſtances, the retching or irritability of ſtomach is not remarkable; for ordinarily, after a quantity of liquor has been rejected, the patient remains quiet and torpid till a freſh accummulation takes place.

The vomiting thus recurs at intervals, and, as the diſeaſe approaches to the latter period, the vomited liquor becomes black,—ſometimes black as ſoot, oftener like muddy coffee, and ſometimes of a faint brown, with a tinge of green. If the body be open at this time, the ſtools are black, and ſmooth like tar or molaſſes: but though vomiting be a frequent ſymptom, previous to the fatal termination, it is not a conſtant one; nor is the black colour, of what is thrown up, eſſential to the character of the diſeaſe. The eye and countenance recover their natural compoſure during the decline of the fever; but the veins of the eye become turgid, as if filled by a ſucceſsful injection, and towards the latter ſtage, the expreſſion is moſt affecting and melancholy. The yellowneſs, the foundations of which are often viſible at the termination of the irritated ſtate, increaſes rapidly for the moſt part,—in ſome caſes, the colour is light as that of a lemon, oftener deep as an orange, the ſkin of an American ſavage,—ſometimes dark, almoſt like mahogany. Delirium, as obſerved before, is a rare occurence in the early ſtages of this form of fever, as the ſubſiding advances to the latter period, it makes its appearance not unfrequently; the ideas are ordinarily confuſed, with a certain degree of coma, but in ſome caſes, the delirium is violent,—the patient ſo outrageous, as to require to be confined by force; where vomiting or purging ceaſe, or are ſuppreſſed, affection of the head is a frequent conſequence,—the fatal termination is then ſudden. Beſides the above ſymp-

oms, which are ſeldom wanting in the aggravated form of this diſeaſe, hæmorrhage from the noſe, oozings of blood from the ears, gums, and, in ſhort, from the whole tract of the alimentary canal, from the mouth downwards, are obſerved on many occaſions;—in the latter ſtage alſo, large portions of the body ſometimes become livid, more particularly the leſs elaſtic parts. Death is often preceded by hurry, commotion and convulſion; ſometimes life is arreſted without apparent ſtruggle or reſiſtance.

The form of fever deſcribed above ſeems to be more ſtrictly ſpeaking the yellow fever of authors. Its courſe is ſhort, and its termination is ſometimes by the oppreſſion of organs of primary importance, —the lungs or brain, more frequently, by the deſtruction or derangement of organs of ſecondary importance,—the liver or ſtomach,—events connected with irritated motions and irregular determinations. The duration of this diſeaſe does not often exceed four days; according to the more uſual courſe, there are twelve hours of a tumultuary ſtate or forming fever, thirty-ſix, or forty-eight of ardency and excitement, twenty-four or thirty-ſix of ſubſiding. In this there is variety, but upon the whole the morning of the third is the more common period at which the ſubſiding ſtate commences, the evening of the fourth or morning of the fifth, the moſt uſual period at which the fatal event actually takes place; yet various accidents, and particularly modes of treatment, irregularly accelerate or protract the courſe of the whole or of the different parts.

This form of fever is rapid in courſe among Europeans newly arrived in tropical latitudes; but a diſeaſe of the ſame caſt, of conſiderable variety of appearance and more protracted duration, is ſometimes obſerved to take place among thoſe long reſident in hot climates, and more particularly among thoſe, who during this reſidence, labour hard, undergo military fatigues, or uſe active exerciſes in the open air. It is neceſſary to remark, that there is not any thing very particular in the ſymptoms of the firſt attack of this form; but the excitement of the vaſcular ſyſtem during the courſe runs high,—that ſtate of action called inflammatory becomes general and unequivocal; the pulſe is irritated, ſtrong and vibrating; the heat is great, but leſs ardent or cauſtic, and more equally diffuſed than in the former; the pain of the head is ſevere, but the ſenſation is ſomewhat different here and in the other,—it is connected with a ſtate of ſtrong and violent action; delirium ſometimes runs high, with partial convulſion and great exertion of muſcular ſtrength; the eye appears inflamed, but it is wild and agitated; in ſhort, there are marks of violent irritation, a great degree of increaſed action, with conſiderable indications of energy in the vaſcular ſyſtem and moving powers. The duration is protracted generally to the ſeventh, ſometimes to the ninth and even later. The termination, when favourable, is by ſweat and regular criſis; when fatal, by general failure of the powers of life, marked by venous paralyſis and oozings of blood from different parts; or by deſtruc-

tion of particular organs, &c. frequently too, at an early ſtage, by ſudden convulſion. Vomiting occurs ſometimes; but yellowneſs and black vomiting, though occaſionally obſerved, are by no means common.

II. Into a form of fever, where the action of the vaſcular ſyſtem appears to be deficient or oppreſſed, the moving powers impaired in their energies, or rendered irregular in their motions.

This form of diſeaſe, as obſerved among Europeans newly arrived in the tropical regions, chiefly occurs among men who lead inactive and indolent lives, who are confined in the leſs pure air of crouded towns, crouded barracks, or crouded ſhips, who are under the impreſſions of ennui, chagrin and fear, or who are conſtitutionally deficient in energetic exertions of mind and body. According to the natural qualities of the conſtitution, the accidental circumſtances of the individual or modification of cauſe, the diſeaſe ſeems to be at one time characterized by ſevere local pains, ſpaſms or tremors, by general and undefinable uneaſineſs or fidgetting, at another time, by torpor, by indifference of mind and impaired ſenſibility of body. It is ſometimes ſudden in its attack, ſometimes gradual in its approach. When it aſſumes the diſtinct febrile form, the leading circumſtances of its hiſtory are the following.

It uſually commences with giddineſs, even to blindneſs, pain of the head, faintneſs, ſickneſs, diſagreeable ſenſations at ſtomach, weight and op-

preſſion,—even nauſea and vomiting, pains of the limbs, knees and back, a ſenſe of cold, ſometimes continuing for hours, but ſeldom amounting to the degree called horror; the pulſe, for the moſt part, is ſmall, weak, and eaſily compreſſed, ſometimes, but not always, frequent, irregular, heſitating, and tremulous or creeping, ſometimes in appearance tenſe, or confined in volume, with an impreſſion of obſtruction; the animal heat, on the ſurface of the body, is ſeldom greater than natural,—the internal ſenſation far exceeds; the ſkin is uſually dry; if damp, it is unpleaſant to the touch; the feelings are uncomfortable; and the appearance of the eye and countenance indicates a deſponding mind;—the countennance is uſually dirty and lurid,—ſallow like a ſickly plant, or fading leaf; the eye ſad, but ſeldom inflamed,—it is inanimate and ſometimes gloſſy; the tongue is ſometimes covered with a white mucous coat, ſometimes ſo thin that the red colour ſhines through it,—ſometimes of conſiderable thickneſs,—it is ſeldom brown, and it is oftener moiſt than dry,—ſometimes it is pale and ſmooth and clean, the mouth abounding with a ropy ſaliva; the ſeat of the pain of the head is generally over the eyes, —almoſt always in the forehead or temples, in many caſes ſo oppreſſive, as to occaſion ſtupor like intoxication; ſtrangury, or want of power over the urinary diſcharge is not uncommon.

The headach for the moſt part abates, or ſuffers change of form, at the expiration of the firſt twelve hours; and where tumult and irritation had been

conſpicuous in the beginning, they generally diminiſh about this time, and partial ſweat with temporary relief enſues; yet this abatement is neither conſtant nor of long duration, the ſufferings and diſtreſſes recur in a few hours, particularly the pain of the head, the unnatural appearances of the eye increaſe, the countenance becomes more dingy and greaſy, or flaccid, dry and witqered; the pulſe is ſometimes more frequent than natural, generally ſmall and confined, yet in many inſtances it does not perceptibly differ from the pulſe of health, unleſs in want of energy and expanſion; the thirſt is ſeldom great, but the lips are uſually dry, the mouth clammy, and the taſte depraved; the tongue is for the moſt part covered with a white mucous paſte,—generally moiſt; the ſenſations at ſtomach are unpleaſant; naufea, anxiety, ſighing and deep breathing are uſual: The ſtate of the ſkin, in this form of diſeaſe, deſerves remark,—it is dry, withered, and thickens by a rapid progreſs, becoming impervious, or in a manner cut off from the free current of circulation: the face of things proceeds then very much in one tenor;—a torpor or impaired ſenſibility poſſeſſing the functions, the progreſs to deſtruction is ſilent and often unperceived.

The duration of this form and of the different parts of the form is uncertain: the marks of torpor, of impaired ſenſibility and withering are ſometimes obſervable at the end of the firſt twelve hours, in which caſe, the diſeaſe often advances ſilently and inſidiouſly to the third, fifth or ſeventh day, about

which periods, its character declares itſelf, ſo as not to be miſtaken by obſervers of the leaſt experience; in the early part, the indiſpoſition is ſometimes ſo ſlight, that, unleſs in a certain witheredneſs of aſpect, known to thoſe only who obſerve minutely, it is difficult to ſay in what the diſeaſe conſiſts. In the early period of ſubſiding, the pulſe, to ſuperficial obſervation, differs little from the pulſe of a perſon in health; or it differs chiefly, by imparting an idea of confinement,—of deficient force and expanſion,—an idea relative rather than abſolute. As the ſinking ſtate advances the ſphere of circulation becomes contracted, the pulſe gathers itſelf together, retires from the ſurface and extremities, intermits, and at laſt fails or ceaſes. The ſkin, which was not very hot at any time, becomes cool, dry, huſky and of diminiſhed ſenſibility, giving an idea of a dead hide rather than an idea of the ſkin of a living man; yet, inſtead of being dry, it is ſometimes cold, damp, and flaccid; under this condition bliſters do not riſe, or if they do riſe, they do not diſcharge, the ſurface becoming dry, duſky, livid or black. In the firſt form of this diſeaſe, the yellowneſs of the eye and ſkin was of the jaundiced kind, and ſometimes intenſely deep,—here it is different. The ſkin, in the preſent caſe, is generally flaccid and withered, like a leaf in autumn,—duſky and ſometimes grey, or with a tinge of green,—in looſe and inelaſtic parts, not unlike the appearance of the ſkin after a bruiſe, and in ſome inſtances black as in echymoſis: the eye is ſeldom deeply yellow, but the

white has a certain marcid and lurid appearance. During this ſtage of ſubſiding, the inſenſibility,—the torpor and indifference to impreſſions, both in mind and body, are remarkable; the patient is often ſenſible to the approach of death, but he meets it with a non chalance,—a ſeeming firmneſs reſembling the higher degrees of philoſophical fortitude. In the progreſs of this ſtage the tongue ordinarily becomes clean, though, when oozings of blood take place, it is frequently dry with a moſt offenſive taſte in the mouth; thirſt is conſiderable in ſuch caſes, and though there be no deſire for nouriſhment, the patient often ſwallows, with a kind of indifference, whatever is offered to him. Of drinks, brandy and water, briſk ſpruce beer, and bottled porter, ſeem to be the moſt grateful,—wine is diſagreeable. Nauſea and uncomfortable ſenſations prevailed from the beginning, vomitting is now frequent, but without irritability or retching; the vomitted matter is rarely bilious; it is a pituitous or ropy liquor, with numerous darker coloured flakes,—ſometimes clots of blood entangled in mucus, apparently portions of the inner coat of the ſtomach are brought up in gulpings;—worms alſo ſometimes eſcape by the mouth; the body is generally open in the latter periods of this ſtage, the ſtools bloody and offenſive;—blood ſometimes without mixture, diſcharges itſelf gradually by the anus, ſometimes mixed with connected portions of mucus,—the inner coat of the alimentary canal, it paſſes off at intervals in large evacuations. In this form of diſeaſe there is often

a ſcanty diſcharge, and ſometimes a ſuppreſſion of urine; the pain and irritation, or the deſire of making water is conſtant and diſtreſſing, but there are ſeldom, if ever, marks of diſtenſion;—in ſome inſtances, clots of blood entangled in mucus are diſcharged. Hæmorrhage from the noſe occurs ſometimes, but leſs frequently than in the preceding form; oozings of blood from the eyes and ears have been likewiſe obſerved,—from the whole ſurface of the alimentary canal they are common: ſleep is wanting,—a comatoſe drowſineſs ſometimes takes place. In the latter period the veins of the eye become diſtended, as if injected, the aſpect is horrible, and the intellect is conſiderably deranged, but the delirium is not often violent; the duſky hue is ſometimes converted into a jaundiced yellowneſs, the pituitous and ropy vomiting into vomiting of matter like grounds of coffee, and life is terminated ſuddenly by convulſion, or more gradually by ſtagnation in the circulating maſs.

The above is the mode in which this form of fever uſually appeared in St. Domingo among Britiſh ſoldiers, but in ſome caſes, appearances were different,—more varied and irregular: the pains of the head, back and limbs were ſevere, pains of the ſtomach and bowels excruciating, the body was coſtive or obſtinately reſiſted the moſt powerful purgatives,—ſometimes it was the reverſe,—the evacuations being frequent, the gripings ſharp, and the teneſmus troubleſome; the urine was ſometimes ſuppreſſed; the anxiety great; the deſire of con-

ſtant change of poſture tormenting; tremors, ſtartings, agitations and racking pains in different parts of the body diſtreſſed the patient beyond meaſure. Sometimes about the third day, ſometimes not till the fifth, theſe pains and diſtreſſes abated, the eye and countenance became ſerene and clear,—the countenance florid or of a beautiful bloom, the lips moiſt, and of a cherry red, the ſkin ſoft or covered with ſweat,—in ſome inſtances the ſweat had the ſingular ſmell of a fiſh-market:—Times of aggravation and relief were generally obſervable, but the abatements were ſeldom ſo diſtinct and regular as to deſerve the name of remiſſion; delirium frequently made its appearance; and though the courſe was leſs rapid than in the former, the event was frequently fatal.

III. Into a form, the prominent feature of which is an aſpect of countenance dark and cloudy, as in ſcurvy:—the action of the vaſcular ſyſtem is ſometimes irritated and irregular,—generally oppreſſed and overwhelmed.

This form of diſeaſe appeared principally among thoſe, who were removed from a more pure and cool, to a confined and immoderately hot air, whoſe habits were full, and who were reſtrained from the active uſe of their limbs: In this manner it was common under the removal of troops from poſt to poſt, or under the indulgences and reſt which uſually followed military excurſions in St. Domingo.

The formal attack is ſometimes preceded by heavineſs and oppreſſion, ſometimes the attack, from

a ſtate of high health, is ſudden and inſtantaneous, the ſymptoms are common to the claſs of fevers.—Headach is among the firſt,—it is intenſely ſevere, or heavy and oppreſſive, it is accompanied by giddineſs, faintneſs, often by an undefinable uneaſineſs; a ſenſe of cold is often of long continuance, but ſeldom amounts to horror; the pulſe is uſually frequent, ſmall, oppreſſed and weak, or without energy of ſtroke; increaſe of heat is uncertain, and, where it is perceived, it is ordinarily of ſhort duration; the ſkin is dry,—if moiſt, it is damp, unpleaſant and greaſy,—it is ſometimes preternaturally cool; the countenance is livid and of a duſky hue, dark and overcaſt, as in ſcurvy; the eye is uncommonly clear and gloſſy, of a pearly white and vacant expreſſion; the thirſt is irregular,—ſeldom much increaſed; ſighing and deep breathing are frequent,—a ſenſe of ſtricture or inability of expanding the cheſt, without pain, is common; the general feelings are unſatisfactory, and pains of the loins and limbs are ſometimes ſevere; ſoreneſs of the fleſh is a frequent complaint; nauſea is not unuſual, and even vomiting ſometimes takes place, but ſeldom in a material degree; the tongue is rarely ſuch as is called foul, but it is often covered with tough ſaliva, and ſometimes with a whitiſh paſte,—it is ſeldom dry, ſometimes it is clean, ſmooth and without the prominence of papillæ.

The progreſs of this mode is uniform, and by no means rapid;—the ſymptoms are liable to little fluctuation or change during the courſe; the pulſe,

which appeared ſmall and oppreſſed at the commencement, is ſubject to little variation till near the termination, when it gradually emerges or finally fails; the heat of the ſurface is ſeldom increaſed,—often it is apparently diminiſhed, there are frequent complaints of internal heat and anguiſh about the præcordia; the breathing is oppreſſed, but without local pain; the headach is ſometimes very diſtreſſing; the body is generally open,—the ſtools large,—not unfrequently bloody and dark; the urine is ſcanty,—ſometimes ſuppreſſed; the countenance ſeems cold and livid, the ſkin of a violet or mahogany colour, the joints and tendinous parts tawny and marbled, the inelaſtic parts, ſometimes abſolutely black, as in echymoſis bliſtered, places become ſuddenly dry, ſhrivelled and livid, the veins of the eye become red;—the general aſpect is inanimate and unpleaſant; hæmorrhage, black vomiting and purging of black matter are not unfrequent in the latter ſtage,—jaundiced yellowneſs is alſo obſerved on ſome occaſions; the vomiting and purging ſometimes ceaſe, delirium takes their place, and convulſion follows ſpeedily terminating exiſtence; ſometimes the approach of death is gradual, and life, ſilently contracting the ſphere of its action, yields without a ſtruggle. The favourable termination, indicated by a developement of the action of the vaſcular ſyſtem, often declares itſelf on the ſeventh day;—when fatal life is ſometimes dragged on to the twelfth or longer.

The above is the more common courſe of the ſlow

and inactive mode of this form of fever; in many inſtances, a mode uncommonly rapid and violent is obſerved; the external heat is conſiderable, but the ſenſation of internal heat is inſufferable, the anxiety and diſtreſs, about the præcordia, inexpreſſible, delirium,—irregular and furious, ſometimes takes place, the countenance is dark, agitated and oppreſſed, the eye white and ſingular in expreſſion; the motions of the vaſcular ſyſtem not eaſily deſcribed,—irregular, irritated, but confined, or the excitement combined with an idea of reſtraint; the functions of the lungs are oppreſſed or ſuffocated, the patient gaſps for cool air, the tongue is ſwollen and incapable of proper utterance. In this ſtate of hurry and confuſion, a convulſion ſupervening, ſometimes terminates life within twenty-four hours, but in general the courſe is protracted to the third, and ſometimes to the fifth day. The ſymptoms then aſſume a more regular febrile form; a conſiderable degree of vaſcular irritation takes place, but it cannot properly be ſaid, that there is a regular increaſed action,—there ſtill exiſting an idea of reſtraint or obſtruction; the ſecretions are much interrupted, the urine ſcanty, or ſuppreſſed, the body irregular,—purged or coſtive; the reſtleſſneſs at times great, at times a torpor ſeems to prevail, nauſea common, vomiting not unfrequent; delirium ſometimes moderate, generally violent and furious, ſleep rare,—when occurring, interrupted with wanderings and frightful apprehenſions; ſighing and deep breathing, anguiſh, a ſenſe of internal heat, great thirſt, ſtartings

and ſpaſmodic twitchings are often numbered among the ſymptoms of this diſeaſe.

At a certain period theſe marks of irritation ſubſide; a torpor commences, and the progreſs to diſſolution is rapid; the blood ſeems to ſtagnate at once, or an organ of importance becomes inſtantly ſuffocated and oppreſſed; the irritability of the fibre is loſt, as well as the ſenſibility of mind;—irritating applications make little or no impreſſion, and a conſciouſneſs of the approach of death gives no alarm; the colour of the ſkin and countenance, dark and duſky from the commencement, becomes of a deeper ſhade, or like wood of mahogany; upon the inelaſtic parts, the ſcrotum and belly, is ſometimes an appearance of blood effuſed in the cellular membrane, as in echymoſis, the hands feet and knees are marbled and tawney; hæmorrhage or oozings of blood, black vomiting and black purging with jaundiced yellowneſs, occur ſometimes, but leſs frequently than in forms where the courſe has been more protracted.

The above is a hiſtory of the continued fever of the Weſt Indies, as it uſually appears among ſtrangers, or as it ſometimes, among natives, appears, and thoſe long reſident in the country, under cauſes of unuſual power. The diſeaſe is fundamentally one, and the deſcription given comprehends an outline of the more material forms. It is probable that individual caſes will ſometimes occur leſs pure and diſtinct than the forms here deſcribed, but though there may be ſome variety of combination or a dif-

ference of ſucceſſion not ſpecified, it is preſumed the general features are correct;—the deſcription is in fact an analyſis of a great number of caſes, noted down with care, in the preſence of the ſick.

IV. Into Fevers of Type.

The cauſe of endemic fever, continued, remitting or intermitting is one, but great variety is produced in the form and manner of action. The diſeaſe, in the more violent forms, is, or appears to be continued in ſome ſituations, in others, it is remitting and of regular type. In wet weather and on ſwampy grounds, the endemic of the country is uſually remitting in form; and, under this form, exhibits appearances of jaundiced yellowneſs, of black vomiting, purgings of black matter, hæmorrhage from different parts of the body, petechiæ, lividneſs, &c. The tertian, or the compounds of the tertian chiefly prevail, but, in ſeveral inſtances, a paroxyſm ſeems to continue for forty-eight hours without remiſſion,—the third day is quiet, but fever re-appears on the fourth, from which period, the type is ſometimes regular and diſtinct, with paroxyſms on the alternate days, ſometimes the powers of life are ſuffocated by the acceſſion: hence the fourth, or the morning of the fifth, is often a fatal day in the fevers of ſtrangers, whether continued or remitting. The ſymptoms of the paroxyſms are of the ſame form and kind, as where the form is continued or without remiſſion; they ſubſide at a certain period, and at a certain period recommence, going on for a limited ſpace of time, in this alternate action and ceſſation from action.—

The circumſtances connected with theſe alternate ſtates of morbid action and ceſſation from action, throw a great deal of light on the general operation of febrile cauſes.

Correſponding with the firſt form of continued fever, the ſymptoms of the paroxyſms of the remittent are violent, with great irritation and ſtrong action of the vaſcular ſyſtem, an ardent, pungent, and ſometimes an exceſſively cauſtic heat, ſevere local pains, anxiety, reſtleſſneſs, anguiſh at ſtomach, nauſea, ſickneſs, vomiting, hurried reſpiration, ſevere and diſtreſſing headach, pain of the eyes, delirium, &c. Theſe ſufferings abate at a certain period, but they do not often terminate by copious perſpiration; they recur, ſubſide and recur again at intervals, till a critical period arrives,—frequently the ſeventh day, when they ceaſe finally, or ſigns appear of a fatal termination. During this courſe ſymptoms often ariſe, ſimilar to the ſymptoms of the concentrated continued fevers; the ſkin becomes dry, dingy and withered, jaundiced yellowneſs makes its appearance in the eyes, black vomiting ſometimes takes place, and in many inſtances, hæmorrhage, or exudations of blood from different parts of the body,—moſt frequently the tract of alimentary canal.

A mode of action is alſo diſcovered under remitting form, in ſome manner correſponding with the ſecond form of continued fever. The pulſe is frequent, ſmall and low, eaſily compreſſed,—without energy and force, the ſkin cool, damp and greaſy.

or dry, withered and duſky, the headach frequently ſevere, the countenance inanimate and depreſſed, reſtleſſneſs is conſiderable, with anxiety at ſtomach and uncomfortable ſenſations;—ſometimes the alimentary canal is principally affected;—there is thirſt, a dry tongue, vomiting or purging returning at periods, but in no extraordinary degree of violence;—upon the whole, the indiſpoſition ſeems ſlight,—the patient walks about, neither well, nor to common apprehenſion, materially ill. At a certain period, frequently on the fifth, ſometimes on the ſeventh, the nature of the action changes or becomes more intenſe in degree; the head is affected with coma, ſometimes with a muttering delirium, the pulſe becomes weak and ſunk, the action of the fibre is impaired,—in ſome manner ſuſpended, a ſpecies of paralyſis takes place,—the heat ſinks below natural. This mode of action continus twelve, ſometimes twenty-four hours; the powers gradually emerge, and are again oppreſſed by a ſimilar ſuſpenſion. Sometimes the animal heat is, in a manner, extinguiſhed, the pulſe totally ſuppreſſed,—a mode of action which ceaſes and returns at intervals, and is known to be leſs fatal than threatening, by certain ſenſations of eaſe and quiet,—the ſerene and cheerful eye and countenance which accompany it.

The remitting alſo appears, in many inſtances, under a mode of action correſponding with the third form of continued fever. A livid dingineſs overſpreads the countenance from the commencement of the diſeaſe, a general torpor marks the exiſtence

of the paroxyſm, the blood ſeems to ſtagnate in the extreme veſſels, particularly under the nails, where a blackneſs like a blemiſh grows out in recovery; important organs,—the lungs or brain, are often oppreſſed during this action of the febrile cauſe, and death is the conſequence; when this is not the caſe, the powers of life emerge, till the renewal of the action produces a ſimilar ſuſpenſion and frequently a fatal termination. This is the ordinary courſe in the more intenſe degrees, under the operation of powerful cauſes; in more common circumſtances, the commencement is ſlight, the type is regular, and remiſſions, though not terminated by copious perſpirations or other evacuations, upon the whole diſtinct; about the fifth or ſeventh, a change of action takes place;—the powers of life are in a manner ſuſpended, or a great degree of torpor, in all the animal actions, ſupervenes; the circulation is heavy and oppreſſed, the countenance duſky and grim, dark like mahogany, often greaſy, damp, and dirty; general torpor and dimunition of all the ſecretions mark the period of the paroxyſm; theſe oppreſſions vaniſh, in ſome degree, after twelve or twenty-four hours, and again return at a given period.—Such a form of diſeaſe is frequent in the more unhealthy ſituations of St. Domingo, in the ſummer and autumnal months, it occurs occaſionally, in the more healthy, in the months of October and November.

The deſcription of endemic fever, contained in the preceeding pages, is drawn from actual obſerva-

tions made in the hoſpitals of St. Domingo, during the years 1796, 1797, and ſome part of 1798. It is not probable, that the deſcription will exactly correſpond in every particular, with the deſcription of endemic fever in the other iſlands of the Weſt Indies at the ſame or different periods, though there be no cauſe to doubt that the fever of tropical regions is radically one diſeaſe. The author had an opportunity, in the years 1774, 1775, 1776 and 1777, of obſerving the fever of the Iſland of Jamaica; and it appears to be indiſputably the ſame with that of St. Domingo, though often differing in general aſpect and mode of action. In the fever of Jamaica, the ſenſibility of the fibre did not ſeem uſually to be impaired, nor did it ſeem to be often impaired, even in the moſt aggravated degrees of the fever of America; in St. Domingo on the contrary, a ſpecies of torpor or a ſuſpended irritability has been a leading and conſpicuous feature. On what cauſe this depends is not known; but there is reaſon to believe that ſome general change in the conſtitution of ſeaſons has taken place; for according to various informations, the fever of the other iſlands, and even the autumnal fever of North America, particularly the fever of Philadelphia, diſcovers at preſent ſigns of torpor, impaired irritability, or as it is uſually called malignity, ſimilar to what has been remarked in the deſcription of the fever of St. Domingo.

The action of the cauſe of fever is one, but the human body conſiſting of different parts of various qualities, the mode is much varied. It ſeems, upon

the whole, to be principally exerted upon the moving fibre of the vaſcular ſyſtem; and according to the portions or parts of the ſyſtem affected, the ſymptoms or appearances are different. If the action of the febrile cauſe be principally exerted upon the arterial ſyſtem, irritated and irregular motions, increaſe of heat and tumult in the circulation are the conſequences, producing a combination of action, which conſtitutes the firſt form of fever: the ſecond ſeems to ariſe from the cauſe of the diſeaſe being principally directed to the ſerous or colourleſs ſeries of veſſels; in the third, the venous ſyſtem is more particularly affected. In the firſt the irritability is increaſed, or excited beyond the uſual degree; in the two latter, the irritability is impaired, or torpor prevails. Under the circumſtances mentioned the action of fever is general in the ſyſtem, or in a ſeries of parts, occupying every part of that ſyſtem or ſeries of parts nearly alike; in others it is in ſome meaſure local, or confined to organs, particularly the alimentary canal, the liver, the brain, and ſometimes the lungs.

CHAPTER VI.

Diſſection.

WANT of convenience or preſs of buſineſs prevented the author from purſuing a train of diſſection, during the prevelance of contagious fever on the

continent and in Ireland; after arrival in St. Domingo, opportunities were favourable, and diſſection of thoſe who died of endemic fever was proſecuted with diligence, till the various ways, in which the diſeaſe occaſions deſtruction, were ſuppoſed to be aſcertained, ſo as to be capable of being arranged under general heads.

Appearances, upon diſſection, are different according as the cauſe acts generally or locally, or according to the mode of the action. In the firſt form of fever, where the irritation is great, the re-action of the vaſcular ſyſtem violent in the early ſtage, irregular determinations and deſtruction of organs are commonly the conſequence :—the liver, the brain, and very frequently the inner ſurface of the ſtomach exhibit marks of derangement. The ſecond form ſeldom terminates fatally, till the external appearances of the third are in ſome degrees preſent. When the third is rapid in its courſe, the ſpongy organs,—the liver and lungs are ſometimes, as it were ſuffocated or oppreſſed,—the lungs are like a bag filled with grumous blood,—the liver and ſpleen diſtended with black blood, in ſuch a manner that their coverings are ſometimes ruptured. In the ſecond, and in the more protracted caſes of the third, the venous ſyſtem is turgid, as if filled by injection.

The following are the more uſual appearances, according to the changes produced upon the principal organs.

Head. The veſſels of the head, in the firſt form are frequently full and diſtended with blood; in

ſome particular inſtances, marks of inflammation in the membranes, adheſions and ſometimes cheeſy exudations near the falx :—water was found in the ventricles on ſome occaſions, but this was by no means a common occurrence—it ſeemed to be more frequent in diſeaſes of type than in the violent continued fever ;—the diſtenſion and fulneſs through the whole volume of the brain was conſiderable. In the ſecond form, particular marks of inflammation were ſeldom viſible, but the venous ſyſtem was uniformly and generally diſtended, as if filled by a ſucceſsful injection ; yet upon the whole the general diſtenſion of the brain was leſs conſpicuous than in the former :—the plexus choroides was often a clotted maſs of blood.

Thorax. In the firſt form, the lungs do not often ſhow much appearance of diſeaſe ; in the ſecond, they are irregularly ſpotted,—the back parts particularly are black with ſtagnated blood ; in the third, they often appear, through the whole extent, like a ſponge filled with black blood, but without any traces of actual inflammation.

Abdomen. In opening the abdomen, the omentum and its appendages generally appear of a faded, olive, grey and duſky colour ; the blood veſſels are large and diſtended, as if from injection, but there are ſeldom ſigns of actual inflammation ; the exterior aſpect of the ſtomach and inteſtines correſpond in colour with that of the omentum, grey, dark and marcid ; the blood veſſels are much—diſtended, but actual inflammation is rarely ap-

parent; the appearance of the inner ſurface is ſeldom uniform through the whole,—the veins are generally diſtended; but beſides this, the inner ſurface of the ſtomach, in the firſt form particularly, often exhibits large ſpots, or circles of a bright red reſembling actual inflammation, in the centre of which are frequently ſeen ſmall points, like beginning gangrene; the villous coat is alſo looſe,—in the act of ſeparation, and actually ſeparated in ſome places; in the ſecond form, more frequently than in the others, the colour of the inner coat of the inteſtinal canal is like brick duſt, the coat hanging looſe and almoſt ſeperated; ſometimes this takes place uniformly through the whole tract, ſometimes it is confined to particular places or a congeries of diſtended blood veſſels, entangled in the mucous membrane, appear in cluſters to beſpangle the ſurface with bloody ſpots; the cavity is ſometimes alſo lined or filled with black grumous blood. In the firſt form, or where black vomiting has taken place, liquor, reſembling the grounds of coffee, is found in the cavity of the ſtomach; where the vomiting has not been black, the liquor found in the ſtomach is generally pituitous, viſcid and with flakes of mucus, ſeemingly portions of the inner coat.

Liver. The appearances of the liver are various: where marks of re-action in the general ſyſtem have been conſiderable, and where a local determination has taken place in extent and degree, the veſſels of the liver bear marks of great diſtenſion; the blood-veſſels and biliary ducts are then often preternatu-

rally enlarged,—full of fluid blood and black bile; the colour is ſometimes variegated like marble, with ſhades of red and yellow. In the third form, particularly when of rapid courſe, the liver appears ſometimes uncommonly large, black and diſtended, as if ſuffocated with blood, the membranes are ſometimes ruptured, or they give way in the act of handling the liver. In the firſt form, or where black vomiting has taken place, the gall bladder is more or leſs full of bile, often black and thick like tar or molaſſes; the gall ducts are enlarged, and the bile is traced into the duodenum, tinging, with its ſooty colour, the contents of the ſtomach and inteſtines.

Spleen. The ſpleen is ſometimes diſtended, ready to burſt,—or the membranes are actually ruptured; ſometimes it is more flaccid, or like a bag of grumous blood.

Bladder of urine. The bladder is often ſmall and contracted, the ſides of it denſe and firm, as if long in a ſtate of contriction: it ſeldom contains urine, or it contains it only in ſmall quantity: on the internal ſurface are often found bloody ſpots, or clots of blood, entangled in the mucous membrane, circular and inſulated, like the impreſſion of the point of a bloody finger on a pale ſurface.

CHAPTER VII.

Characteriſtics of Endemic and Contagious Fever.

It is ſeldom difficult to decide upon the exiſtence of fever, when preſent in proper form, but it is often difficult, if guided by exiſting ſymptoms only, to determine the ſource from which that fever has ariſen. It was obſerved above, that the cauſe of fever proceeds from two general ſources, viz. a vegeto-animal ſource in a ſtate of decompoſition and change; a living animal ſource, or rather a living human body, under derangement of ordinary or healthy action. From theſe ſources proceed fevers of two kinds,—endemic and contagious. The cauſes of fever are thus fundamentally different, and minutely examined will be found to originate modes of action of a peculiar caſt; yet the derangements are exteriorly ſo much alike, that the diſcriminating characters cannot be delivered, but with doubt and heſitation;—the reſult of the whole appearances will often determine the judgment, but ſymptoms ſeparately conſidered lead to no certainty. It is preſumed, that it appears evident from the hiſtorical detail of the preceding pages, that the action of the cauſe of endemic and of contagious fever has ſtrong analogies. It is there obſerved, that the cauſes of endemic and of contagious fevers were equally connected, under certain conditions, with eruptions on the ſkin, ulcers of the extremities, diarrhœa, purg-

ging, dyſentery or flux, fever of an intermitting or remitting form, of a form continued,—violent and rapid in courſe,—moderate and of ordinary duration, or ſlow, lurking and irregular,—ceaſing and returning at intervals,—changing from general to local diſeaſe of various deſcription, and from local diſeaſe to general and formal fever.

In looking over the deſcriptions of the preceding pages, an opinion will be probably formed, that the fever which prevailed among Britiſh troops on the Continent of Europe, at the Cove of Cork in Ireland, and during the paſſage to the Weſt Indies, is not preciſely the ſame, with that which committed ſuch ravages in St. Domingo; yet if two caſes of thoſe diſeaſes be examined as they actually appear, unconnected with collateral circumſtances, it will not perhaps be an eaſy matter, to ſay in what the difference conſiſts. The ſource from which the cauſe proceeds is known to be different; a fundamental and radical difference of action unqueſtionably does exiſt, but it is too ſubtile to be appreciated or defined: the differences perceived are ſuch, as ariſe chiefly from greater or leſs force of cauſe, or from circumſtances of ſubject; the general manner of attack, the courſe, changes and duration of endemic and contagious fevers have great ſimilarity; both diſeaſes ſeem to obey the ſame periods of change or termination; the periods of the endemic are indeed regularly tertian, or compounds of tertian; in the periods of the contagious fever there is more uncertainty, and, as far as the author has obſerved, leſs re-

gularity; but the principle of this variety is ſo little known, that a rule of diſcrimination cannot be formed upon it with ſafety. Certain modes of action, or combinations of action prevail more frequently in the one diſeaſe than in the other; but forms and modes more or leſs frequent do not conſtitute characteriſtic differences: thus affection of the ſtomach and biliary ſyſtem,—vomiting and yellowneſs are leſs frequent in contagious than in endemic fever; yet they do occur in the former, and ſometimes to conſiderable extent: affection of the cheſt, alternating with delirium or affection of the head, appears to be more common in contagious than in endemic fever; ſo likewiſe is a peculiar, maniacal derangement or lively delirium, occurring in the progreſs to recovery; yet the frequency of theſe appearances does not furniſh a characteriſtic mark. But though the obvious marks of febrile action are much alike, or the apparent differences are evidently influenced by a concurrence of accidental cauſes, yet effects prove moſt explicitly, that a radical and an important difference of mode actually does take place. The cauſe of endemic, as well as of contagious fever, interrupts the old or healthy, and gives riſe to a new and morbid train of motions in the ſyſtem; but with this difference, that the cauſe of the endemic is loſt in the firſt operation, the cauſe of the contagious fever impreſſes a figure of action upon the human body, originating a cauſe, which produces a ſimilar figure of action, through an endleſs variety of ſubjects.

It is a matter of the firſt importance to diſcriminate between endemic and contagious fever; but as the knowledge of this cannot be attained from a compariſon of the exiſting derangements or actual ſymptoms of the diſeaſe, collateral circumſtances are required to furniſh their aid; and though an examination of the firſt does not lead to ſatisfactory concluſions, an accurate hiſtory and an unprejudiced conſideration of the latter will ſeldom fail to throw light upon the ſubject. Had the hiſtory of the riſe and progreſs of the diſeaſe which has widely ſpread its ravages among Britiſh troops in Europe been duly attended to, the remedy, as is not difficult in diſcovery, would not, it is preſumed, have been long neglected in application; or had the circumſtances connected with the appearance and decline of the fever which has committed ſuch deſtruction in the Weſt Indies, and, on different occaſions, at Philadelphia in North America, been accurately known and properly eſtimated, the ill grounded fears of propagation, which have alarmed, and which continue to alarm far and near, could not fail to ceaſe. It is at all times a ſacred duty of the phyſician to examine facts and opinions with the utmoſt rigour of inveſtigation, and it is particularly neceſſary on the preſent occaſion; for had truth been aſcertained on the ſubject of the yellow fever at an early period, we ſhould have probably been now ſaved the mortification of bluſhing at the puſilanimity of the human character, or of bewailing the ſelfiſhneſs and depravity of heart, which ſo conſpicuouſly betrayed themſelves, among

the inhabitants of Philadelphia, in the epidemic of 1793.

In forming an opinion of the exiſtence or non-exiſtence of contagion, it will be neceſſary, on all occaſions, to bear in mind, that as the concluſion is a matter of much importance in ſociety, it muſt not be admitted, ſo as to be acted upon, without the moſt rigid examination, and the concurrence of many corroborating teſtimonies. If various perſons, brought into hoſpitals on account of accidents, become affected, in a certain courſe of time, with a fever not connected with their conditions, little doubt will remain that a contagion exiſts, or that the fever originates from that ſource; if the medical officers, nurſes and attendants become generally affected with the fever prevailing in thoſe hoſpitals, while a ſimilar diſeaſe does not appear in neighbouring places, or only as traced to this ſource, the concluſion of contagion may be ſafely admitted; if clothes, bedding, even the perſons of men, from this infected ſource, be removed to a diſtant place, a diſeaſe ariſing in this place, and extending itſelf to others, may be juſtly concluded as proceeding from contagion. Under the above circumſtances the exiſtence of contagion may be conſidered as poſitive; under the following it is preſumptive, but not certain. If the form of fever, in a country where the character of the endemic is ſtrongly marked, be irregular, fluctuating,—not exactly obſerving the periods of tertian, ſimple or compound, there are grounds to ſuſpect a cauſe of contagion. This was particularly

the caſe on the continent in the campaign 1794. The ſcene of that campaign was laid in a country where intermitting fever is the reigning diſeaſe, yet genuine intermitting fever appeared very rarely, in ſuch part of the Britiſh army as fell within the obſervation of the author. The diſeaſe was fluctuating in its form;—a febrile period of three, or of five days, was followed by a remiſſion of uncertain duration,—followed in its turn, by a renewal of febrile motions, ceaſing and recurring at intervals,—ſometimes for a conſiderable length of time. The opinion of the exiſtence of contagion, though not poſitive, will be ſtrongly preſumptive, where a certain form of diſeaſe, fever, flux or ulcers of the legs, appears in a ſociety or iſolated claſs of people, but does not extend without the circle, unleſs from immediate communication. This was the caſe on the continent and in Ireland; medical officers ſuffered,—military officers, living under the ſame general atmoſphere, but little connected with the ſubjects ſpecified, were ſtrangers to ſickneſs. When fever prevails epidemically, in a town, portion of a town, or diſtrict of country, and when nurſes, phyſicians and attendants on the ſick, or even occaſional viſitors in the diſtricts become affected with ſimilar diſeaſe, the exiſtence of contagion is believed to be eſtabliſhed; but this, in fact, is by no means the caſe; for the cauſe of diſeaſe generally diffuſed in the atmoſphere of the diſtrict, infects thoſe who enter its circle, without the neceſſity of communication with diſeaſed bodies. The ſphere of action of contagion appears

to be very confined,—general or epidemic diſeaſe cannot be eaſily ſuppoſed to reſult from it;—a direct communication, or near approach to the ſource being neceſſary; there are perhaps no inſtances well authenticated, where contagious fever has extended widely in a country; the other, on the contrary, occupies an extenſive ſphere of action, pervades a whole town, or diſtrict of country, and frequently travels in tracts, in a certain ſucceſſion through ſtreets and alleys, without the direct communication of the inhabitants. If perſons ſickening at this ſource, removed to a diſtrict where the diſeaſe does not exiſt, do not communicate to their attendants, a form of the malady under which they themſelves labour, there cannot be juſt cauſe to ſuſpect the exiſtence of contagion; if the unpurified clothes and bedding of people who have been ill, or even who have died of this diſeaſe, be worn by healthy men with impunity, a direct proof is furniſhed that contagion does not exiſt. If the courſe of the diſeaſe, in riſe, progreſs and decline, follow the laws of ſeaſon which influence ordinary endemic, there can be little reaſon to ſuppoſe it contagious; for contagious fever, ariſing from direct communication or near approach to the contagious ſource, is little under the influence of ſeaſon; on the contrary, it is uſually more aggravated in winter, when the endemic ceaſes or declines.

The jarring opinions reſpecting the nature, and the contradictory practices adopted by phyſicians in the cure of the fever, which has been more than uſually

fatal of late years in the iſlands of the Weſt Indies, and which has committed great ravage in Philadelphia at different times, afford a melancholy proof of the ſmall progreſs as yet made in medical ſcience. Opinions are at direct variance on the ſubject; and as a knowledge of the truth is of great importance in ſociety, the author will ſtate in a few words what has been ſaid by others, and what he believes to be true in fact.—The fever of 1793 is ſuppoſed, by one party, to have been imported into Philadelphia from a foreign country, and to have been propagated afterwards ſolely by contagion. The hiſtory of its riſe and progreſs has an exterior ſhow of credibility. The other party maintains the origin to be ſtrictly domeſtic, but that the immediate ſource has been ordinarily artificial, viz. damaged cargoes of coffee, onions, &c. This party at one time ſuppoſed the diſeaſe to be virulently and generally contagious, it now ſuppoſes it to be ſo only conditionally and in a low degree.—Various proofs and teſtimonies are adduced in ſupport of theſe contradictory opinions, which, publicly and privately are maintained by their reſpective partiſans, with more zeal than diſcernment. The hiſtory of imported contagion has been diſproved by formal affidavits and depoſitions; and the rules of quarantine, formed by theſe very ſupporters of the idea of contagion, ſeem to be a proof that they do not, in their own minds, believe that contagion is the cauſe of the diſeaſe. Had it been otherwiſe, they muſt have thought it equally neceſſary to have guarded againſt

importation in the months of January and February, as in Auguſt and September. The opinion of the others, viz. a domeſtic but artificial and iſolated ſource, is a heterogeneous and unſatisfactory invention, by no means ſufficient, without the medium of contagion, to explain the progreſs and extent of the fever, and by no means neceſſary to account for its production. The ſhores of the Delaware in their natural ſtate, the accumulated filth and nuiſances, of thoſe parts of the city or ſuburbs, where the diſeaſe firſt appeared and chiefly prevailed, acted upon by the heat of a powerful ſun, are capable of producing the cauſe of fevers of intermitting and remitting form, in a ſtate of the higheſt concentration; in certain ſeaſons of the year, and under certain conditions of the atmoſphere, this diſeaſe may be, as it actually often is, epidemic, and, on ſome occaſions, extremely fatal;—damaged coffee, and rotten onions are not required to lend their aid; but ſuppoſing that a febrile cauſe of the virulence deſcribed, had been diffuſed from theſe ſources over the wide extended city of Philadelphia and its ſuburbs, the approach to theſe ſources muſt have been fatal,—more certainly fatal than approach to the lake of Avernus.—The opinion of general contagion maintained at one time by this party is now abandoned, but a conditional or limited contagion is ſtill believed to take place. This opinion it is preſumed is erroneous; and the error is important, as it goes to confound the fundamental diſtinctions of nature. Where the cauſe of fever originates from a vegeto-

animal ſource in a ſtate of decompoſition, it is not obſerved that this cauſe is ordinarily reproduced, by its own operation on the ſyſtem, and if not ordinarily, it may be preſumed, it is not ever reproduced; the laws of nature do not fluctuate or change capriciouſly; nor will it appear, on an accurate inquiry, that there are grounds for this ſuppoſition in the fever of America. There are certain facts, admitted by all parties, which cannot well fail to convince ſuch, as are willing to be convinced of truth, that the diſeaſe of 1793 and the ſubſequent years, was not contagious in its nature; that it was in reality, no other than the endemic of North America, epidemic from cauſes, ſome of which were viſible, others more obſcure and not in the ordinary courſe of things. In the firſt place, it is admitted by all, that the diſeaſe did not make its appearance till the latter end of July or beginning of Auguſt; that it declined in October, and ceaſed before the expiration of November; that it firſt made its appearance, in the ſtreets and alleys near the banks of the river, or in ſuburbs ſimilarly ſituated;—Kenſington and Water-ſtreet ſuffered particularly from its ravages;—(Kenſington is a moſt noiſome place, and the lower ſtreets of Philadelphia are ſingularly offenſive in hot weather); that perſons, immediately from the tropical climates, lived in the worſt ſituations of the town with impunity; that Europeans, or ſtrangers of the northern diſtricts ſuffered from the diſeaſe in a more violent degree than the inhabitants; that nurſes, phyſicians and viſitors of the ſick,

in the lower ſtreets, ſeldom eſcaped from an attack; that the nurſes and phyſicians of the hoſpital at Buſh-hill, or of perſons ſickening in Philadelphia, but tranſported to the country, were not affected by the diſeaſe; that a certain deſcription of people, butchers, painters, &c. whoſe occupations obliged them to ſpend the greater part of their time in a medium, which probably operates ſome change upon the qualities of the air, enjoyed a comparatively good ſtate of health; that the unpurified clothes of the ſick, or of thoſe who died, did not communicate contagion or diſeaſe to others.

The fever which has prevailed in the Weſt Indies during the preſent war, and which ſtill prevails, on every importation of European ſubjects, has been the occaſion of alarm to the Engliſh nation, and of diviſion of opinion among medical men, in the ſame manner as the fever of Philadelphia. A fever, ſaid to be malignant and peſtilential, prevailed in the Iſland of Grenada, in the year 1793. It appeared to be of a violence unuſual in that iſland; and was therefore ſuppoſed to depend on a foreign cauſe. This cauſe was ſought for and diſcovered, without much ſearch in the ſhip Hankey, lately arrived from Boulama on the coaſt of Africa. The fever was thus ſaid to have been imported from Africa, and it has further been ſaid to have extended, from the peſtilential ſource of Grenada, to the other iſlands of the Weſt Indies; it has nearly annihilated Britiſh armies in thoſe iſlands, and it has appalled the Engliſh nation in England itſelf. The diſeaſe,

in vague deſcription, has a number of formidable attributes; in the detailed hiſtories of ſome caſes annexed to the deſcription, it appears to be the endemic of tropical climates, in ſome meaſure epidemic and uncommonly fatal among Europeans newly arrived in the warmer latitudes. If this be true, it is ſcarcely neceſſary to ſay, that it is not contagious, or that it was not imported by the Hankey. This remark ariſes from a peruſal of the treatiſe publiſhed upon the ſubject; the evidence of Mr. Paiba, lately laid before the public by Dr. Smith of New York, declares the reputed origin to be a fiction. But though the contagion of the yellow fever may be proved to be a fiction, the contagion of fear has ſo impreſſed the minds of men, that things are ſeen through a falſe medium, and common ſenſe cannot obtain a hearing. This was ſtrongly exemplified at New Providence in the year 1797.

The Iſland of New Providence requeſted ſome troops for its defence. Orders were accordingly given, that the 32d regiment be ſent from St. Domingo for that purpoſe; but as the ſtrength of the 32d was leſs than the defence of the iſland required, it was judged fit to fill it up to a certain ſtandard, by drafts from other regiments,—of men convaleſcent,—in an impaired, but ſtill ſerviceable ſtate of health. The ſubjects ſelected for this purpoſe were ſuch as laboured under ſome degree of chronic purging, connected with diſeaſe of the viſcera; or who ſuffered, at intervals, attacks of intermitting fever. This regiment, ſo compoſed, ſailed from the

Mole, early in March, and arrived at New Providence, after a tedious paſſage of eleven days. In the month of June a fever made its appearance in the iſland, and carried off a great number of the inhabitants, many of the ſoldiers of the 32d regiment, and ſeveral ſailors belonging to veſſels reſorting to the port of Naſſau. The Iſland of St. Domingo had ſuffered ſeverely from ſickneſs for ſome years paſt; and in common opinion it was eſteemed a ſource of contagion. A fever which appeared at Naſſau earlier in the ſeaſon than uſual, and with more than ordinary violence, was attributed, in the imagination of the inhabitants, to the above mentioned connexion, and the circumſtances of riſe and progreſs were ſo minutely detailed by people, who might be ſuppoſed to poſſeſs ſome capacity of judging, or of diſcriminating between truth and the appearance of truth, that it was impoſſible not to heſitate. It was perfectly well known, that contagion did not exiſt in the hoſpitals of St. Domingo; but it could not be ſaid poſitively, what might, or might not have been produced, during embarkation, among men in an impaired ſtate of health, confined in narrow ſpace, and probably little attentive to cleanlineſs of perſon. The reports of the iſlanders, and of many viſitors all tended to eſtabliſh the exiſtence of contagion; the evidence of Mr. Ferguſſon ſurgeon of the 67th regiment of foot, who accompanied the 32d regiment to its new quarters, and who remained ſome time in the iſland, on account of his health, places the matter in a different light, but in ſuch a light, as maintains the

uſual relations between the appearance and decline of fever in ſimilar ſituations. The inhabitants of New Providence, in dread of the contagious fever of St. Domingo, and alarmed at the arrival of a number of men in an impaired ſtate of health, ordered it ſo, that the ſick were placed by themſelves on an iſland, and forbid intercourſe with the town. The complaints, at this time, were chronic purging and relapſe of intermittent; the diſeaſe, which appeared in June, was the endemic of the iſland, epidemic and of unuſual violence,—from which the inhabitants and other ſtrangers ſuffered equally with the ſoldiers of the 32d regiment. The author had not the opportunity of inſpecting the 32d regiment previous to embarkation, nor of examining facts relative to New Providence on the ſpot; but the report of the ſurgeon of the 67th regiment correſponds ſo well, with what has happened on other occaſions, that he cannot withhold from it his aſſent.

But though ill founded fears of the peſtilential yellow fever as it is called, have extended themſelves to diſtant countries, and, in a manner paralized the vigour and appalled the courage of the Engliſh nation, little alarm or concern has been entertained of the fever, which prevailed, in the early period of the war, among the troops in England, Ireland and on the continent of Europe, though the mortality, among the ſoldiers, at certain periods, and in certain ſituations, was not perhaps inferior to that of the leaſt healthy of the iſlands of the Weſt Indies. This contagious fever, as ſaid

before, is an artificial diſeaſe. It never ought to appear, and it ſeldom does appear, in armies well recruited, well organized and actively employed: it found its way into the Britiſh army, from corrupted ſources of recruiting, it ſpread through it, from inattention to the ſigns of its exiſtence, or the want of means to reſiſt its power; and it prevailed ſo generally, that, at one period, a majority of the corps in Europe were contaminated. It was alſo obſerved before, that it is often difficult to diſtinguiſh endemic from contagious fever by the exiſting ſymptoms of the diſeaſe. The circumſtances of climate, and the conditions of ſubject modify appearances in ſuch a manner, that endemic fever, in crouded and unventilated appartments, has ſometimes the aſpect of fever of contagion; while contagious fever, occaſionally expoſed to pure air often intermits or remits like an endemic; though the periods of remiſſion and acceſſion are rarely regular. Contagious fever, it may be further obſerved, does not properly belong to the field, and is not found where a ſoldier ſhelters his head from the ſun by the boughs of a tree; but it has often been found to travel in tents over a great extent of country, and to adhere to the equipage of a camp with great obſtinacy. This was particularly the caſe on the continent, in the campaign of 1794.

CHAPTER VIII.

Prognosis, or Signs of Favourable and Fatal Terminations.

To be able to discern at a distance, the signs that indicate a favourable or fatal issue of fever, is at all times a matter of satisfaction, and frequently a matter of great utility. Danger, timeously foreseen, may often be averted; when events cannot be stopped in their course, the best arrangements may be made for meeting them. Danger, in fever, arises from two general sources; viz. *1st*, from excess of irritated motions irregularly determined, occasioning local destructions, or derangement of organs; *2d*, from defect, or suspension of vital energies in particular organs, or in a series or system of parts: this effect seems to be produced in two manners,—viz. by exhaustion, in consequence of excess of increased action; by suspension from an inexplicable, but apparently primary mode of operation.

The signs, which indicate danger or safety, and foretel events, may be reduced to different classes.

The duration of fever is of considerable variety; of the term of which duration, as well as of the modes of termination, some opinion may be formed from the symptoms of the early stage. Where arterial action is materially increased, the signs of fever being distinct, open, and regular, the termination is generally on the seventh day, often favourable and final,

—by ſenſible evacuation, and a renewal of ordinary ſecretions. Where the irritated motions are in exceſs, in the general ſyſtem, in particular organs, or in a ſeries of parts, the courſe is uſually more rapid, the duration ſeldom extending beyond the fifth day, frequently terminating on the third; the event, when favourable, is then for the moſt part marked by hæmorrhage or copious evacuation, though it muſt alſo be obſerved, that the irritated motions ſometimes ſubſide at a given period, and healthy action gradually and imperceptibly reſumes its courſe,—liable however to be interrupted by a ſpeedy recurrence of diſeaſe. Where the event proves fatal, the powers of life are ſometimes ſuddenly overwhelmed by convulſion; ſometimes the organization and functions of a vital organ are deranged, by action irregularly directed; and ſometimes the irritable principle, being exhauſted by an exceſſive general excitement, the energy of motion ſubſides, and the ſtream of life gradually ſtagnates. Where the irritated motions are irregular, tranſient, changing in form; or where they do not regularly and progreſſively advance to a given point, the period of criſis or change is leſs certain:—ſometimes on the fifth, oftener on, or about the ſeventh, the nature of the ſymptoms change, a new courſe begins, and advances by a regular progreſs to a favourable or fatal iſſue: If from this period, the action of the vaſcular ſyſtem developes, the event is uſually favourable; if the energy of action diminiſhes, or the circulation ſeems to retire and withdraw itſelf from the ſurface and extremities, the danger is great,—

the event, for the moſt part, fatal. Where the cauſe of fever acts, by a depreſſing or ſuſpending operation, the duration is uncertain; and no clear judgment can be formed of the event. Where the action of the cauſe is ſtrong, producing ſtupor like apoplexy, or deep intoxication, life is often terminated in forty-eight hours,—ſometimes in leſs. Where the action of the morbid cauſe is leſs powerful, producing only ſlight deviations in the motions of the vaſcular ſyſtem, a change occurs, ſometimes on the fifth, oftener perhaps on the ſeventh:—from the nature of the ſymptoms taking place at this period, an opinion may be formed of the duration and event. Where the action of the vaſcular ſyſtem emerges gradually, from a ſtate of torpor or ſuſpenſion, to a diſtinct and regular form of fever, the period of termination ſeldom exceeds the ſeventh day; and the event may, for the moſt part, be expected to be favourable. Where the action ſubſides at an early period, or where a comatoſe diſpoſition ſupervenes, the duration ſeldom exceeds ſeven days, without another change, or a fatal termination.

The *pulſe*, ſeperately conſidered, affords, for the moſt part, ſome indication of the probable duration and event of fever. Where the action of the artery is energetic, regular and ſtrong, the termination is often on the ſeventh day,—the criſis diſtinct and final. Where the motions are irregular and irritated to exceſs, the changes or terminations are oftener on the third or fifth; if favourable, active hæmorrhages or copious evacuations commonly

mark the event; if fatal, local deſtruction, general exhauſtion, or paralyſis uſher in death;—a ceſſation of febrile motions, at a given time, without ſigns of criſis,—is ſometimes followed, at a ſhort interval, by a recurrence of morbid action, ſpeedily terminating exiſtence; or life ſometimes ceaſes, though a formal morbid action, may not recur, from mere inability or want of power. A pulſe ſmall, irregular and irritated, not uniform in its periods of riſe and fall, furniſhes cauſe of ſuſpicion; the criſis is then uncertain, and ſeldom final;—changes or imperfect criſis happen in ſuch caſes, and in ſuch caſes they happen moſt commonly on the fifth and ſeventh. At theſe periods the pulſe emerges, the tide of circulation flows freely to the ſurface and extremities; and after duration, equal with that of the preceding courſe, a favourable criſis takes place: But inſtead of the gradual developement deſcribed, the pulſe, at this period, ſometimes loſes energy, retires or withdraws from the extremities and ſurface of the body, becomes torpid and ſluggiſh, or ſmall, contracted, frequent and irregular, intermits and finally fails;—the ſpace of time, in which this fatal progreſs finiſhes its courſe, varies from one day to ſeven. Intermitting pulſe is commonly conſidered among the ſigns of approaching death; yet intermiſſion of pulſe, ſometimes furniſhes an indication of a criſis or of a favourable change going on: it muſt however be remarked, that, under ſuch intermiſſions, the pulſations uſually poſſeſs energy and force, and are ſeldom of extraordinary frequency.

Beſides intermiſſion, ſuppreſſion, or failure of pulſe is ſometimes obſerved among the accidents of fever; and, inſtead of being a ſign of approaching death, ſometimes only expreſſes the mode, in which the cauſe of fever operates during the paroxyſm; at a certain period, this ſuſpending cauſe is removed, the pulſe re-appears, and, after a certain interval, it is again ſuppreſſed. In ſuch caſes, the eye and countenance are uſually clear, the intellect unimpaired, the reſpiration calm and eaſy. Where the pulſe is feeble, ſmall and frequent in the commencement, the courſe is uſually tedious, and the event uncertain;—under ſuch conditions the termination is not decided and final;—a change takes place, at a certain period, and from the character of the ſymptoms which mark this change, an opinion of the event may be formed. Where the pulſe is ſluggiſh, torpid, differing little from that of health, unleſs in defect of energy and expanſion, the period of termination is uncertain, and the event doubtful; it emerges or becomes febrile, ſubſides or fails, with the correſponding effects of ſimilar action in other parts of the ſyſtem; a pulſe oppreſſed in the commencement, labouring and ſtruggling, ſuggeſting an idea of obſtruction, terminates by re-action, expanſion, evacuation and criſis; or the ſtruggle ſubſiding, torpor and paralyſis cloſe the buſineſs of life.

An increaſed and expanding action of the arterial ſyſtem is uſually connected with a fluſhed, florid and blooming countenance; the irritated and confined,

with a grim and cloudy, ſometimes a confuſed and cloudy aſpect; the ſluggiſh, ſmall, equal and unenergetic, with a ſallow paleneſs, a greaſy, tawney, withered hue; the oppreſſed, the obſtructed and ſluggiſh, with a dingy lividneſs, and more or leſs of a mahogany colour.

The ſtate of the eye and countenance, in the ſame manner, as the ſtate of the pulſe, is ſuppoſed to furniſh indications of the event of the diſeaſe. A dry and withered aſpect, unleſs in the commencement or actual invaſion of fever, is unfavourable; it is particularly unfavourable, at a late period, and under certain degrees of weakneſs it is fatal; a countenance, greaſy, clammy, dirty, duſky, livid, flaccid and olive coloured, or like a fading leaf, affords an unpromiſing ſign; a countenance, in a manner ſwollen, torpid and inanimate, or livid, cold and of the colour of mahogany, without increaſed action of the vaſcular ſyſtem, indicates a diſeaſe of force; and, for the moſt part, indicates that the termination will be ſpeedily fatal; a countenance, livid und cloudy, with increaſed action of the arterial ſyſtem, often accompanies ſome affection of the cheſt and attends a diſeaſe, the character of which, in common language, is ſaid to be malignant; it prognoſticates evil, or gives ſuſpicion of danger; a ſerene and cheerful countenance, augurs well, in general; a florid and lively tint of colour is ambiguous; in many inſtances, the bloom of the cheeks is beautiful,—the colour of the lips like crimſon, yet there is no ſafety.

An eye ſad, deſponding, watery, confuſed in its motions, or with heavy and loaded veſſels in the commencement, indicates danger; at a late period, an eye with large and ſwollen veins, a marcid yellow tinge of colour, an inanimate, torpid aſpect, indicates, for the moſt part, a decided fatal event; an eye of uncommon pearly whiteneſs, and of a vacant idiot look is often connected with a livid colour of the countenance, and furniſhes an indication of miſchief;— an eye cheerful, ſerene, ſparkling and animated augurs well; but the eye is ſometimes clear and lively, under the approach of a fatal event,—a criſis, in ſuch caſe, has in fact taken place, but death is owing to a local deſtruction.

The tongue is uſually regarded as furniſhing an opinion of the actual ſtate of fever; it alſo furniſhes ſome indication of the future event. The tongue is, for the moſt part, more or leſs foul: a covering of a milky or mealy paſte,—cold and ſlimy, gives ſuſpicion of latent danger,—of untoward and irregular ſymptoms of the ſpaſmodic or convulſive kind, particularly, if united with a cloudy countenance;—a tongue large, ſwollen, leaden coloured, or ſmooth, dry, ſtiff and languid in its motions, is alſo with juſtice reckoned among dangerous appearances; a tongue, with a thin, rough covering, firmly adhering, marks a tedious diſeaſe, or in the event an imperfect criſis; a tongue, clean, ſmooth and without papillæ or roughneſs, may be reckoned among the bad ſigns, or, among the ſigns of tedious diſeaſe, and uncertain iſſue. As fever advances the

tongue is frequently dry, ſometimes covered with a thick, brown or cream coloured covering, which ſeperating at the edges, towards a critical period, furniſhes a favourable prognoſtic; the tongue is often rough, black and dry, ſometimes dry, black and ſmooth, or parched, red and gloſſy in the late ſtages,—ſometimes it is covered with a ſooty pellicle;—all which are indications of danger, but not to the extent commonly believed; a tongue clean and ſmooth, without other ſigns of criſis, gives ſuſpicion of ſomething unfavourable; while a clean, ſmooth tongue, with nauſea or vomiting, and a ceſſation of the uſual ſigns of fever, is a dangerous ſymptom: the motions of the tongue expreſs the ſtate of the energy of the moving powers; torpor and languor, or exceſs of mobility and tremors, have their reſpective indications;—the tongue, in ſome inſtances, inſtead of being thruſt out, is drawn back, and ſometimes the patient, as if conſcious of want of power, lays hold of it in order to draw it out; ſuch actions are commonly connected with depraved idea;—they are unfavourable ſigns, but they have not a direct indication.

The ſtate of thirſt, of appetite and of taſte are much connected with the appearances of the tongue; and it is upon the whole favourable, when a correſpondence is obſerved between them. When thirſt is wanting, at the ſame time that the tongue is foul, and parched, or dry, parched and gloſſy, the ſign is bad, as indicating a deficient ſenſibility, or approach to paralyſis:—exceſs of thirſt and loſs

of taſte are unfavourable ;—a certain peculiar nauſeous taſte gives notice of the approach of an exudation of blood from the tract of the alimentary canal.

Vomiting in fevers is of various kinds ; vomiting of bilious matter,—copious and effective, is by no means an accident of danger ; vomiting, of watery matters, or ſuch as are called pituitous, is always ſuſpicious, more particularly where exceeding, in great proportion, the quantity which has been drank, and where occurring at uncertain intervals, apparently in conſequence of the ſtimulus of an extraordinary accumulation, rather than the increaſed irritability recurring at febrile periods, or, where accompanied with a cold and dry, or a clammy and greaſy ſkin, a ſmall and ſluggiſh pulſe. Vomiting, of matters differing little from the drink taken in, unleſs in the acquiſition of a ropy conſiſtence, or the intermixture of flakes of darker coloured mucus, furniſhes an indication of the approach of danger, —as vomiting of matters black and muddy, or like the grounds of coffee, for the moſt part, indicates the near approach of death ;—from the light ſhades of vomiting of this colour and deſcription, ſome few recover ;—from the more intenſe degrees,—the dark and ſooty, inſtances of recovery, if they do exiſt, are rare. Nauſea, nearly connected with vomiting, points to a ſuſpicious conſequence ; a diſagreeable ſenſation at ſtomach,—an unavailing deſire to vomit indicates danger, more certainly in many circumſtances, than actual effective vomiting ;—ſuch a condition of ſtomach often marks the firſt days of

the concentrated endemic or yellow fever of tropical climates.

The indications of event, arising from evacuations downwards, have a near correspondence with those of vomiting mentioned above. Copious and effective bilious evacuations, more especially if in some degree periodical, furnish a favourable prognostic; large, watery stools, with a cool skin and small pulse indicate danger; small, watery, ineffective evacuations have nearly the same indication with an unavailing nausea; while evacuations of any description, with tension of the hypochondria and abdomen, give cause to suspect an unfavourable issue. Stools, black and smooth as tar, depend on a similar cause with black vomiting, and prognosticate a similar event, though an event, perhaps, less certainly fatal. Large, bloody, mucous evacuations, though unfavourable are not often fatal, particularly if effective, and accompanied with gripings and pain; gradual and constant oozings of blood indicate a paralysis of the veins of the alimentary canal, —a condition from which, some, though not many, recover.

Besides the indications of event, furnished by the nature and conditions of evacuations from the alimentary canal, the functions of the urinary organs deserve notice in forming a prognostic. Increased discharge of urine is a rare occurrence in fever, diminished secretion is common; a diminished, or almost suppressed secretion is frequent in fevers of a bad character; and, as depending on torpor or im-

paired action, the cauſe of nauſea; and ineffective evacuations of the alimentary canal, it may be conſidered as indicating a ſimilar event: the ſecretion of urine is ſometimes in a manner ſuppreſſed,—the bladder contains no fluid, but the deſire of making water is conſtant and diſtreſſing; blood is ſometimes diſcharged in conſiderable quantity, accompanying a criſis; ſometimes blood oozes gradually,—ſimilar to the oozings from the ſurface of the inteſtines,—it indicates a ſimilar condition of things.

The evacuations of the alimentary canal,—the ſtates and degrees of vomiting and purging, furniſh the means, on many occaſions, of judging of the iſſue of fevers;—certain ſenſations referred to the ſtomach, independent of evacuation, deſerve particular attention. Anxiety is often local and relates to the ſtomach alone; anguiſh or pain of an unuſual and undefinable nature, a ſenſation of internal heat or burning, a ſenſe of weight or heavineſs, a tenderneſs of the touch, and an idea of fulneſs belong to this claſs; they are circumſtances of much importance, and never preſent without danger; in ſuch caſes the abdominal muſcles labour more than ordinary in the buſineſs of reſpiration, and ſuch labour indicates the exiſtence of miſchief; obſcure, interrupted hiccuppings are ordinarily dangerous; hiccuppings open, ſtrong and without tenſion or fulneſs, in the ſame manner as intermitting pulſe, ſometimes mark a criſis.

The ſtate of reſpiration is intimately connected with fever. Contagious fever is often in a manner

peripneumonic,—the reſpiration is hurried, performed with pain and difficulty ; this affection frequently alternates with delirium, and implies a conſiderable degrèe of danger; an inability of expanding the cheſt, without local pain, is not unfrequent in the moſt concentrated fevers of the Weſt Indies, and it is always a dangerous ſymptom;—in ſuch caſes the lungs are found, upon diſſection, like a ſponge filled with blood.

Delirium is a common ſymptom, in the fevers of all countries, and of all deſcriptions, and frequently furniſhes important indications of final events. Delirium, appearing only at the regular periods of fever, does not give much real cauſe of alarm,—conſtant, or unremitting, it is always ſerious,—violent and outrageous, in early periods, it is often followed by accidents the conſequence of its violence ;—violent and outrageous in the latter ſtages, convulſion, apoplexy or paralyſis are frequently its conſequences. Delirium, in conſequence of the ſuppreſſion of an evacuation, as purging, vomiting, or of the ceſſation of a local ſuffering, gives juſt cauſe of alarm ; low and muttering delirium, in the early ſtages, is ſuſpicious,—low and muttering delirium, in the more advanced progreſs, particularly if accompanied with a heavy clouded eye, a ſallow, greaſy and dirty aſpect, a ſmall frequent or an intermitting pulſe, furniſhes a moſt unfavourable prognoſtic;—a lively delirium, with a cheerful eye and expanding pulſe, particularly after a ſtate of depreſſion and languor, augurs well;—delirium, or lively derange-

ment of idea, at a late period of diſeaſe, affords a prognoſtic of ſafety.

There are various conditions of ſenſation, or of the action of the moving fibre, which demand particular attention in an eſtimate of events. Tremors, ſtartings, and the various irregular motions, which often appear in fever, are undoubtedly dangerous; but perhaps leſs dangerous than alarming,—they do not often appear in the moſt concentrated ſtates of diſeaſe:—a certain undeſcribable uneaſineſs, a fidgetting, or conſtant deſire of change of poſture, without apparent cauſe, is a worſe omen; it is frequent,—and, in the early ſtage, in ſome meaſure characteriſtic of the continued fever of tropical countries; it terminates often in a ſpecies of paralyſis, or a loſs of the ſenſibilities of mind and body; —a calm and philoſophical reſignation, an abſence of pain or ſuffering mark, for the moſt part, that the event is decided;—in conſequence of preceding irritation, ſuch expreſſion of relief with a dry ſkin and duſky aſpect foretels, with much certainty, a fatal event.

The ſigns of diſeaſe, which appear on the ſkin or ſurface of the body, are numerous, and ſome of them afford very accurate information of future events. A ſkin warm and ſoft, poſſeſſing ſenſibility without unuſual tenderneſs, is a favourable circumſtance; as on the contrary, a ſkin, dry, thick, impervious, or like a tanned hide, indicates great danger; bliſters, which riſe well and diſcharge freely, furniſh proof, that the general ac-

tion of the cauſe of the diſeaſe is under the control of the medical art; bliſtered parts, which become dry, black and ſhrivelled, duſky or brown, mark a dangerous ſtate of morbid action. Active eruptions about the mouth and face are of two kinds. Where the eruption comes forth freely it marks a formation of type; and it may be relied upon as furniſhing an indication of ſafety; where the eruption does not come forth freely, where it is feeble and languid, or where it ſeems to croud in hardened cluſters, which blacken rather than form into yellow ſcabs, the danger is of no ſmall import: Large blotches, or veſicles filled with yellow ſerum, appearing on the ſkin about the period of criſis, continuing to appear in ſucceſſion through a certain progreſs of convaleſcence, ſeem to be connected with a ſecret danger: this ſign would not have been conſidered as deſerving notice, had not ſix or ſeven perſons in St. Domingo, in whom the appearance was obſerved, relapſed ſuddenly and died unexpectedly. Petechiæ appear frequently in fever, endemic as well as contagious; they are ordinarily conſidered as indicating great danger, and a diſeaſe of great malignity; they are not however uniformly fatal;—they ſeem to originate in a loſs of tone of the venous ſyſtem, or obſtruction to the current of circulation; gangrene or black ſpots are frequent; ſometimes blackneſs, to great extent, has appeared on the extremities; it has ſeemed, on ſome occaſions, to mark a criſis, though it is, for the moſt part, an unfavourable appearance.

The above are ſome of the ſigns connected with danger or ſafety in fevers. They are ſuch only as have ariſen from the author's own obſervation; and they are not conſidered as abſolute and poſitive in their reſpective indications. To form an accurate opinion of events, requires an eſtimate of various circumſtances, often ſo different in their natures, that a great part of the ſcience of prognoſtic will always depend upon the diſcernment of the individual obſervers; yet it will not be deemed improper, in this place, to have laid down a general outline.

The contagious fever, which has prevailed in the Britiſh army during the preſent war, did not appear to be a diſeaſe of much inherent mortality. Where the ſick were ſcattered about in pure air, and attended with common care, the mortality did not perhaps exceed one, in one hundred; where they were crouded together in hoſpitals, or in ill ventilated apartments, the ravages were dreadful,—equal, on ſome occaſions, to three out of five; the mortality was uniformly greater among old men, and men of large ſize, than among the young, the middle aged, and men of ordinary or ſmall ſtature;—it ſeemed alſo to be greater, where the cauſe proceeded from a virulent and concentrated ſource, than from ſources more diffuſed: hence among the attendants in filthy and crouded hoſpitals, the powers of life often ſunk down without ſtruggle or reſiſtance;—under purer air, the ſymptoms were frequently more violent and alarming, but the mortality was in no degree equal.

The contagious fever, prevailing in the Britiſh

army, was not inherently a diſeaſe of great mortality; the endemic fever of St. Domingo, from its own nature, committed great deſtruction; of European ſubjects newly arrived, ſcarcely one in three attained eſtabliſhed health; in ſome ſituations, and among a certain claſs of ſubjects, the loſs was greater than even this.

The marks of approaching deſtruction are chiefly conſpicuous in the appearances of the ſkin and countenance, and in the ſufferings of the alimentary canal; an unavailing nauſea, a ropy and flakey vomiting, internal heat, anguiſh, fidgetting and change of poſture, a dry, ſallow, olive ſkin, a pulſe inelaſtic and ſluggiſh, furniſh certain prognoſtic of approaching miſchief; an undeſcribable uneaſineſs in the commencement, torpor and abſence of ſuffering in the more advanced progreſs, foretel, more certainly than any other ſigns, the nature of the event.

CHAPTER IX.

Critical Days.

The doctrine of critical days, however ſeverely ridiculed by a certain claſs of writers, is in this diſeaſe, founded on eſtabliſhed laws, and, according to the principles laid down by the author, in a treatiſe on the fevers of Jamaica, capable of ſatisfactory explanation. The tertian period, ſimple or compound, in

periodic fever, the ſeptenary revolution in ſlow and continued fever, are capable of explaining all difficulties. In the contagious, as well as in the endemic fever under view, the laws of the critical days are regular and undeviating, though the criſis be not always perfect or complete. In the moſt concentrated forms, the fever ſometimes terminates by diſtinct criſis on the third; ſometimes the febrile ſymptoms ſubſide at this period, but inſtead of recovery, marks of deſtruction,—local or general, diſcover themſelves, and the fatal termination is protracted to the evening of the fourth, or morning of the fifth day; the fifth alſo becomes, on ſome occaſions, the day of fatal termination, by the acceſſion of a new paroxyſm; it is likewiſe obſerved in ſeveral inſtances, that the ſymptoms of fever continue violent during the firſt forty-eight hours,—the third is a day of calm, or remiſſion, on the fourth, a paroxyſm recurs,—of violence, ſometimes terminating exiſtence; ſometimes, from this period, the type becomes regular tertian, by which means the future criſis happens on an even day, calculating from the commencement of the indiſpoſition, on an odd day, calculating from the diſtinct formation of type. In fevers of a certain degree of force, or of a certain form of action, the fifth becomes a day of criſis,—favourable and final; ſometimes a day of ſubſiding, leading to a fatal termination, or a day of a change, at which commences a new train of action. The ſeventh is the moſt remarkable for the favourable termination of fevers,—diſtinct and regular in form; at this period alſo changes occur,—

action of a new train begins, and proceeds in its courſe to a given point. If theſe changes be conſidered as commencements of a new train of action, which has its defined period of continuance, the doctrine of critical days becomes eſtabliſhed upon a regular and ſyſtematic foundation; on any other calculation, it will be found contradictory and confuſed.

It is not unneceſſary to obſerve, that periods are upon the whole more regular in endemic than in contagious fever; and that criſis is conſequently more diſtinct and more eaſily diſcerned. In contagious fever periodical revolution exiſts, but it is leſs uniform in its exterior form; the exacerbations and abatements are numerous, and apparently fluctuate; in many inſtances, where the motions are low and languid, the intervals of abatement are little perceptible, and the general courſe of the diſeaſe is tedious.

CHAPTER X.

Of the Proximate Cauſe,—the immediate or direct Action of the Cauſe of Fever.

The proximate cauſe of fever, a ſubject, on which volumes have been written, is yet unexplained. A multitude of unfounded fancies have been offered to the world as theories; or partial and ſecondary actions have been conſidered as primary and fundamental modes of derangement, explaining the ſecret

of the operation. It is thus, that the cauſe of fever has been thought to conſiſt in certain changed conditions of fluids, not demonſtrated, nor capable of being demonſtrated to the ſenſes; or in certain deviations from ordinary and healthy actions, obvious indeed to the ſenſes, but partial in the ſyſtem, or ſecondary in connexion. The firſt claſs is now abandoned; the ſecond furniſhes the explanations ſtill offered concerning the operation of the cauſe of fever. Among theſe increaſe of heat, increaſed action of the heart and arteries, ſpaſm or conſtriction of extreme veſſels, debility or impaired energy of the moving powers have borne conſpicuous parts. Increaſe of heat, conjoined often with increaſed or rather diſturbed action of the vaſcular ſyſtem, is a common, but not a conſtant indication of the exiſtence of fever; ſpaſm, conſtriction, or an altered condition and an altered capacity of capillaries, is obvious in the commencement and during the continuance of diſeaſe; in the ſame manner debility, want of power, deficient alacrity in motion, make early and prominent features: theſe conditions do exiſt, but the preciſe mode by which they are produced is not perhaps within the reach of comprehenſion, as the chain of operation, by which they become eſſential to fever, is not eaſily underſtood.

The human body, conſiſting of parts irritable and leſs irritable, moveable and leſs moveable, is ſo formed as to be called into action, in its moveable parts, by the application of certain powers; to this action

ſo excited, a ſtate of reſt, or ceſſation from action neceſſarily ſucceeds; and in this alternate action and ceſſation from action, conſiſt the life and health of the individual. Air, compoſed of a certain proportion of parts, ſeems to be the cauſe which ſupports, at leaſt which principally regulates the action of the moving fibre, ſo neceſſary to the continuance of life; —when the conditions of the air are altered, the effects are viſible; under the pure air of cool and hilly countries, the action of the fibre is energetic, and motion is performed with pleaſure and alacrity; under hot and impure air, the action of the fibre is languid, and motion is performed with pain and unwillingneſs; exceſs on either part is unfriendly to life; in vital air an animal dies from exhauſtion,—in conſequence of exceſſive excitement; in mephitic air, life ſtagnates,—perhaps from want of ſtimulation. But, as the life of an animal has been obſerved to conſiſt in action and ceſſation from action, ſo health is obſerved to conſiſt in this action and reſt being uniform, regular and alternate. Cauſes which diſturb this regular proceſs,—a proceſs, under which ſeems to be generated the matter of life, produce a ſtate of things denominated diſeaſe:—among theſe are principally ranked the cauſes of fever.

The intimate nature of the remote cauſe of fever is obſcure,—not leſs obſcure, perhaps, than the nature of the matter of electricity. It is ſubtile, but ſtill it is a matter capable of concentration and of diffuſion. Its force and concentration are meaſured by effects, but nothing is known of modification or

form. It enters the human body, but the channels by which it enters are not known with certainty; it probably undergoes changes, between the period of entrance and the period of obvious action, but they are not perceived distinctly. Its effects, upon the living system, are visible; but, in its own substance, it has not yet been submitted to the human eye; the causes, by which it is concentrated, by which it is diffused and even dispersed, are numerous and obvious; and the laws, which regulate its motions, may often be traced. It seems to accumulate within the system by a regular, but unknown process; in a certain state of accumulation, it seems to explode, in a manner similar to the explosions of electricity. An accurate idea of the changes which it undergoes, from the period of entering the system, till action becomes obvious, cannot well be formed; it cannot even be known precisely, whether the open and declared action of the cause be owing to a change produced upon the matter of the cause itself, by a regular process; or to an approximation of the system to act, at certain periods, in correspondence with causes disposed to disturb the ordinary health. The process is here obscure; but this fact is certain, that at particular periods more than at others, an aptitude of collision arises, or that a form of febrile action manifests itself more frequently about the fourteenth day, after communication with an infected source, than at any other. It is hence probable, that revolutions in the frame, unknown to the most careful observers, have an in-

fluence in determining the colliſion of febrile action at certain times more than at others; and the opinion gains confirmation, from the circumſtance, that theſe events take place chiefly at ſeptenary periods,—at a ſeventh, fourteenth, twenty-firſt, &c. from the time of expoſure to the ſource of infection. This infers a longer ſpace between expoſure to the cauſe and conſequent action of the cauſe than is uſually allowed by writers, but the author ſpeaks from his own obſervations,—made upon numerous bodies of men,—upon healthy men placed as attendants in infected hoſpitals, and upon healthy ſoldiers ſent to the concentrated ſources of endemic fever. Among ſuch, fever ſcarcely ever appeared before the ſeventh day, commonly not before the fourteenth; and, in numerous inſtances, not till the expiration of ſix weeks or even two months, though the cauſe of diſeaſe, during this time, was ordinarily in great activity.

A conſideration of the cauſes which retard, or prevent the operation of the febrile cauſe, as well as of thoſe which facilitate, accelerate and call it prematurely into action, may ſerve to throw ſome light upon this ſubject. The former claſs themſelves, chiefly under cauſes which diminiſh or prevent an accumulation of irritability of habit; among which may be ranked an abſtemious and vegetable diet, copious dilution of watery beverage, evacuations, natural or artificial, active and animating exerciſes,—continued to fatigue, and often repeated, cauſes which make ſtrong impreſſions on the mind, as enterpriſing, ſevere

and dangerous military ſervices, journeys and frequent changes of place, the intereſting and impreſſive occurrences during ſieges, even the anxious ſuſpenſe or depreſſion of captivity, to which may be added habitual or ſottiſh intemperance. The cauſes which accelerate, or call into action, are of courſe the oppoſite of the preceeding; viz. full and pampered living, irregularities and occaſional debauch, torpor and indolence of mind, inactivity of body; and, above all, reſt and eaſe after fatigues and exertions, indulgence in eating and drinking, after a courſe of abſtinence and a life of ſobriety;—upon a ſimilar principle, a change of circumſtances frequently brings forth into action the cauſe of diſeaſe, lurking in the habit. In this manner, men in perfect health, embarked at the Mole St. Nicholas, in the months of June and July 1796, ſickened in ſuch numbers before arrival at Port-au-Prince,—a paſſage of four or five days, as if they had been ſtruck by a blaſt of peſtilence; men likewiſe, removed from known ſources of diſeaſe to pure air, ſuffered proportionably during the firſt eight or ten days after removal, more frequent attacks of fever than thoſe who remained at the ſource of infection,—a fact proved on numerous occaſions, by the removal of bodies of men from the plains to the mountains, and by the occaſional change of cantonments. Thus, cauſes, which affect the exiſting balances of the ſyſtem, ſeem to ſtrike upon a ſpring, which ſuddenly unfolds the febrile operation.

It has been ſaid above, that the fundamental ope-

ration of life consists in the alternate motion and rest of the organic fibre; causes which disturb and interrupt this necessary process occasion disease,—and finally death. The first operation of the cause of fever evidently disturbs the alternate and regular tenor of the action and rest of the irritable or moving parts of the body; but the mode, by which it produces this effect, is a secret long sought after, and not yet discovered. There are writers who pretend that the cause of fever is a directly stimulating power; others,—and the more numerous class, pretend that it is directly sedative. If stimulating,—as it must be supposed to be of a nature similar to other stimulating powers, the effects must be necessarily expected to appear on the application of the cause, and to cease when that cause is removed; but this is not the case; persons approach the most concentrated sources of disease,—disagreeably affected perhaps by noisome and offensive exhalations, but not immediately affected by an attack of formal fever; a time intervenes, different on different occasions, but generally such as proves that a febrile action is not the effect of an immediate impression; nor when this new or changed action does take place is it uniformly increased; on the contrary, it is often diminished in energy and force in the commencement,—recovering its natural, or even an increased degree of energy, as the force of the cause diminishes. On the other hand, if the cause of fever be a power directly sedative, the operations of life must be supposed to become languid in an uniform tenor, to

ſtagnate and finally to ceaſe; yet the ſigns of action, —in parts or in the general ſyſtem, as they are frequently irritated in an unuſual degree, ſo they are ſometimes excited to an uncommon exertion. This is not explicable on the ſuppoſition of a ſedative operation; nor on this ſuppoſition can the various changes of action, which are often obſerved to take place in the courſe of the diſeaſe, be eaſily underſtood. But though it be not difficult to ſay what the primary operation of the cauſe of fever is not,—to ſay preciſely what it is exceeds the bounds of our knowledge. The ſigns of febrile action are of great variety; obvious appearances are often contradictory, yet there is little doubt but that the primary mode is one, the varieties depending upon force and modification of cauſe, or accident of ſubject.

The human body is formed to be acted upon by external cauſes: life is ſupported by the application of appropriate ones—it is endangered by the oppoſite: the product of faulty combinations of matters, —animal and vegetable, and the ſecretions from deranged action of the living ſyſtem, ſeem to poſſeſs an irritating quality,—a quality, in conſequence of which, when in a certain ſtate, or when at a certain point of fitneſs, a train of unnatural motions are excited, diſturbing, interrupting, or in a manner ſuſpending the alternate and uniform action and reſt of the irritable and moving parts of the body, but not diſturbing the action of every part, or of every ſeries of parts, in the ſame proportion. When the chief force of the cauſe is exerted upon parts of locomo-

tion, tremors, ſtartings and various agitations prevail; when upon the heart and arteries, the motions become irritated, and the current of circulation is diſturbed; when upon the veins and colourleſs veſſels, parts leſs capable of expreſſing action, the motions ſeem torpid and languid, the circulation is ſlow, and the current finally ſtagnates; when locally on organs or parts of the body, the appearances are more complex. Sore legs, inflamed eyes, diarhœa and peripneumony are frequent forms of the local action of fever. When theſe are repreſſed, by a new action excited in the part, general fever, or other local affections frequently ariſe. The cauſe which directs this action of fever to organs or ſeries of parts deſerves notice; it ſeems to be no other than the condition of irritability in parts,—in other words, than the diminiſhed power of reſiſting cauſes which diſturb the ordinary and healthy operations of the ſyſtem,—in many caſes accidental, or ariſing from cuſtoms and habit. In this manner, and in conſequence of this accumulated irritability, from preceding habits of action, the locomotive powers, the heart and arteries are principally acted upon by the cauſe of fever, among the labouring and active claſſes of men, the veins and colourleſs veſſels, among the ſedentary and indolent, the alimentary canal and its connections, among the pampered and luxurious. In the firſt caſe, action appears to be increaſed, and the fever in conſequence is named inflammatory; in the ſecond, there is little active effort, the uſual train of move-

ment is disturbed or impeded, and the fever is denominated slow, nervous or putrid; in the third, the whole parts of the organ are involved, and the mode of action is more complex, but the form of fever, resulting from it, is usually denominated bilious.

Under those circumstances, causes, which alter this figure of locally diseased action, give rise to commotion in the general system, or in a series of parts, till such time as another diseased action is produced in a remote part, or upon an excretory organ. The changes effected on this action, by accident or artificial means, are often rapid; and commonly effected through channels of communication not very obvious to the senses: The manner of the whole is indeed obscure; and it is not pretended that the operation is explained, by what is here said. It however appears, from the most general view of things, that the febrile cause is a cause of irritation, disturbing, but not increasing in a natural manner, the action of the moving fibre,—on the contrary interrupting, impeding, and as it were suspending the operation essential to health and life; by which means, the expression of its effects principally consists in debility and impaired energy.

CHAPTER XI.

Cure of Fever.

Medical science has in general advanced; some parts of it have made considerable progress, but the

cure of fever appears to be ſtationary, if not retrogade. Books have been written upon the ſubject without number; infallible methods fill the pages of authors, and important diſcoveries are communicated in every new publication; yet men die as in the days of ignorance. The cure of fever, it muſt be acknowledged, is difficult, and capable of little perfection, in the ſtate of progreſs at which the diſeaſe is uſually ſubmitted to the care of phyſicians. But though difficult, it might be preſumed, that ſomething could not well fail to be diſcovered, from the unwearied reſearch of writers: the ſubject has filled volumes, yet it does not appear that a general principle is attained; the reſult conſequently is a maſs of contradictions,—a collection of opinions—not always candidly and ingenuouſly repreſented. The author of this outline has felt the inconvenience, and now ventures to ſuggeſt ſome hints which he hopes may in time lead to a remedy: the laws of health are uniform and regular, —even diſeaſe obeys a rule; if the preciſe form of diſeaſed action could be aſcertained, the method of cure might be laid down upon a ſure foundation; this unfortunately is not the caſe, but even the knowledge of a principle, by which this action may be inverted is of value. It implies, it muſt be confeſſed, an experiment apparently at random, but, under certain conditions, an experiment of ſafety.

According to the manner, in which the author has long viewed this ſubject, the plan of cure divides itſelf into two parts; viz. into the cure of a fever

forming,—and into the cure of a fever formed. In the firſt, art is capable of doing every thing; and it conſequently ought not to leave any thing to nature; in the ſecond, a form of things has taken place, or a chain of operation is eſtabliſhed, which can ſeldom be broken forcibly, conſiſtent with ſafety to life, art can do little; and the little which can be done requires caution and judgment; for to act and not to do harm, under ſuch a condition of things, is not ordinarily a matter of indifference.

The cauſe of fever, whatever it may be, or whatever may be the direct mode of its operation, viſibly and indiſputably changes natural and healthy action,—generally or locally, into action diſeaſed and unnatural. To invert this operation,—to originate a new train of motions, analogous to thoſe of health, is the fundamental principle of cure: And this much is certain, that if the object be undertaken at the proper period, the plan judiciouſly laid and followed up with vigour, the end ſeldom fails of being attained. Decided practices, of whatever deſcription, ſucceed; and the complete and perfect recovery of health is often the effect of directly oppoſite means; on the contrary, if the early period of diſeaſe be paſt, ſo that the organization of parts is injured, or deeply impreſſed with a figure of unnatural action, the conduct of the cure is a matter of great nicety, and requires great caution; the indications fluctuate and vary according to circumſtances;—ſymptoms, or modes of action, which threaten danger to life, will then be watched and

warded off, but termination, or decided cure muſt be left to the periods of change; for though criſis, by judicious exertion ſometimes actually is, and often is capable of being rendered more complete than it otherwiſe would be, it is doubtful to what extent it can be accelerated. Theſe periods of change are important to the phyſician; and in fever, completely formed or advanced in courſe, muſt principally regulate his conduct.

SECT. I.

Cure of Contagious Fever.

The method of cure employed by the author in this diſeaſe, though probably not the beſt, was in general ſufficient to conduct matters to a fortunate iſſue, if adopted in the early ſtage, and executed with vigour and perſeverance. Where the patient was ſeen in the courſe of the firſt day, the views were directed to effect a change of exiſting circumſtances; and to excite, by ſuitable means, a new train of action. In the accompliſhment of this object, a vomit of emetic tartar, ſo managed as to prove ſevere in operation, was ſingularly ſucceſsful. Evacuations by ſtool were frequently the conſequence of this practice; while ſweat, or a free perſpiration often reſulted from warm bathing, or from fomenting the extremities and trunk of the body, with flannels wrung out of hot water. When the tide of circulation was, by theſe means, turned to the ſurface, James's powder, in repeated doſes,

ſometimes with, and ſometimes without any addition of calomel, warm diluent and aromatic drinks, bliſters to the nape of the neck, back or temples were employed to ſupport this ſtate of things,—and generally with complete effect. If the above proceſs was adopted under the forming ſtate of fever, or within twelve hours from the commencement, and followed up in all its parts, the progreſs was either cut ſhort abruptly, or the threatened violence ſo much mitigated, that accidents ſeldom occurred. The ſtate of diſeaſed action being changed by the management here mentioned, a continuance of ſimilar management becomes neceſſary during a certain length of time, to prevent a recurrence of the evil habit. A ſucceſſion of bliſters will often be proper; the drinks are required to be diffuſible and gently ſtimulating; the air, cool and pure, to be admitted freely; the body to be waſhed, or bathed frequently in warm water, and afterwards waſhed completely in water from the ſea or the river; the linen and bedding to be changed often; and travelling in boats, carts or carriages to be employed on every poſſible occaſion.—This laſt is of eſſential benefit; but it appears oftener by accident than deſign among the means of the healing art.—Bark, will alſo be uſeful in many caſes, in maintaining the reſtored healthy action.

If the diſeaſe be formed,—the firſt days of it actually paſt, the hopes of cutting ſhort its progreſs, by the above, or any other proceſs known to the

author, are uncertain, and the attempt is not, perhaps, altogether safe. The chief business then consists, in obviating fatal tendencies as they arise, leaving the time of the termination to the periodical laws of the habit. The views in such case are various, and change frequently in the course of the disease. But though the indications be often fluctuating and uncertain, this general one prevails,—to encourage and promote a determination to the surface and extremities of the body. To accomplish this object, no general plan or remedy answers better than doses of James's powder, often repeated, sometimes with additions of camphire, opium and even calomel; warm fomentations to the extremities, the admission of pure air, the frequent use of clean linen, frequent ablution with water, from the sea, with water, to which vinegar or spirits are added, rendered more effectual by exercise or gestation, compose the means. But if important organs,—the brain, the liver or lungs suffer, from the irregular action of the cause of the disease, more particularly than other parts, the local application of blisters, sometimes preceded by bleeding, and aided by bathing or fomentations, is chiefly trusted to: blistering, if well conducted, affords more benefit in such cases than any other remedy, but various accessories are necessary to ensure the operation.—If marks of congestion appear in the head or epigastric region, calomel with James's powder is a remedy of great value.

In those forms of fever, where the motions of the

vaſcular ſyſtem are highly excited, where the action is actually increaſed,—general and copious fluid perſpiration,—the deſtruction or injury of an organ, exhauſted, repreſſed, weakened or ſuſpended action occur, in a defined,—and generally at a ſhort period. In the firſt caſe, intermiſſion or cure is effected; in the ſecond, the general fever is converted into a local diſeaſe, the event of which is precarious; in the third, the energies are generally impaired, and the moſt vigorous exertions are required to ſave life. It is a matter of the firſt importance, in the cure of fever, to inquire minutely into the ſtate and condition of things; for on a knowledge of this depends the ſucceſs of our undertakings. If from a ſtate of activity and excitement, torpor and ſuſpenſion of action ſupervene ſuddenly, evacuations,—bleeding, vomiting, purging and bliſtering are indicated;—in ſuch caſes, the means, whatever they are, require to be proſecuted with a determined boldneſs; on the contrary, if after a ſtate of high excitement, the increaſed action gradually ſubſides, the irritability or vital energy ſeems to be exhauſted rather than ſuſpended, and more caution and management are requiſite in directing the means of relief; for inſtead of the decided, and ſeemingly violent meaſures, which are often proper in the one caſe, a gradual ſupply of nouriſhment, light and gently ſtimulating, frequent change of linen and bedding, the admiſſion of pure air, waſhing the body with cold water, and, above all, geſtation and travelling are eſſential in the other. Wine, brandy and opium

ſtimulate the ſyſtem to increaſed action; they are numbered among the artificial means of ſupporting exiſtence, but the effects are fleeting, and the management is a matter of great nicety. As ſoon as a fever is completely formed, a train of diſeaſed action is eſtabliſhed in the habit, which can ſeldom be broken abruptly with ſafety to life. Under ſuch conditions, the above powers, applied in exceſs, ſtimulate to increaſed,—often to inordinate action, an action, which ſometimes ſubſides, before an object be attained, by neglect in ſupplying the material of ſtimulation, or which ſometimes deſtroys the irritable quality of the fibre, by exceſſive and continued exertion. In either caſe no benefit ariſes from ſtimulating; deſtruction, on the contrary is accelerated by the miſapplication of means. In regulating the application of ſtimulating powers, under the formed, or in the advanced ſtages of fever, diſcernment and caution are requiſite: the firſt impreſſion muſt be narrowly obſerved, the impreſſion carefully ſupported, but not unduly excited; the final event will then, in a great meaſure, depend on the changes of periodical movement. The author, thinks it proper to obſerve, that, in many inſtances, he has carried the plan of ſtimulating to a great length; he has reaſon to believe, that by this means a patient was ſometimes reſcued from death; but he muſt alſo acknowledge, that the mark has ſometimes been exceeded; action has been excited at a period, or under circumſtances of diſeaſe, where harm might be done, and when no object could be gained by

excitement;—the proceſſes of nature were thus diſturbed, and the artificial cure became abortive, from an attempt ill timed, or badly conducted. The increaſe of action, excited by the above mentioned artificial means,—wine, brandy and opium, is not barely tranſitory, it is followed by increaſe of languor, in proportion to the degree of the preceding excitement; the energy and increaſe of force which follow the admiſſion of free air, the waſhing of the body with cold water, or travelling in boats, carts or carriages are permanent and progreſſive. The contraſt of theſe different modes of operation is often brought under view, in times of military ſervice; and the author has had numerous opportunities of obſerving the effects, not only in individual inſtances, but among collective bodies of men. In hoſpitals, wine, brandy and opium excited action to a certain extent; and life was ſupported, under a ſtupid intoxication, for a length of time, but without progreſs of recovery; under the actual operation of waſhing with cold water, and ſtill more, under the act of travelling a few miles in a cart or carriage, in the open air, men, who could only be ſaid to exiſt, have immediately become cheerful and animated, and walked briſkly on limbs, that a ſhort time before they had not the power of moving. Changes, ſo conſiderable, will ſcarcely be credited by thoſe who have not ſeen them; but thoſe who have ſeen them are numerous, and though the condition of the fact might often eſcape notice, the exiſtence of the thing cannot but be known.

It was noticed above, that fever may generally be cut ſhort, or changed to ſimple form, if attacked with vigour in the commencement; the view may then be proſecuted with boldneſs, for at that period, life is ſeldom tickliſh; if fever be formed, or diſeaſed action be completely eſtabliſhed, the effect of this vigorous plan is uncertain, and the attempt is not without riſk;—the cure then, in a great meaſure, hinges on a periodical change in the habit. If fever be advanced in progreſs,—the ſubject emaciated and exhauſted, ſuffering pain, or labouring under an eſtabliſhed evacuation, as dyſentery or diarrhœa, decided meaſures are dangerous, as the ſudden changes effected by them are often fatal. The raſhneſs of the author, on ſome occaſions, gives him authority to ſpeak to others. The extreme filth and dirtineſs of ſoldiers brought to hoſpitals in the late periods of fever, in ſtates of great emaciation, or worn out with fever in dyſenteric form, prompt the uſe of the warm bath. The impreſſion will not be ſoon obliterated, that four ſoldiers of the above deſcription were put into the warm bath, in which they remained from ten to fifteen minutes;—taken out they were rubbed dry and laid in a clean blanket; they expreſſed a ſenſation of comfort, as if in heaven,—a releaſe from all pain, and a reliſh for ſome food; they fell aſleep,—and two of them never awoke. It is proper to be remarked, that the above men were in a ſtate of the moſt extreme emaciation from dyſenteric fever, and that their condition afforded no proſpect of recovery; but the fatal event was certainly accelerat-

ed by the change conſequent to the warm bathing,—perhaps by removing the ſtimulus of pain, neceſſary in ſuch caſes to the ſupport of life. To have waſhed the body with a ſponge, to have rubbed it with flannel, and gently moved it through pure air, with frequent change of clothing, bouillon and moderately ſtimulating diet, would probably have protracted exiſtence for ſome days;—warm bathing cut it ſhort prematurely.

SECT. II.

Cure of Endemic Fever.

THIS, though the moſt important, is the leaſt ſatisfactory part of the ſubject. The concentrated endemic or yellow fever has been uniformly fatal to Europeans ſince the diſcovery of the Weſt Indies; and it will continue to be fatal till the baſis of colonial arrangement be changed; it has been conſtantly fatal to troops in times of war, and during the preſent war, it has been regarded with the horrors of a peſtilence. The opinions of medical men are divided on its nature and method of cure: Individuals boaſt ſucceſs; but the public has not as yet felt the benefit of a diſcovery. In the early part of the century the anti-phlogiſtic practice of Sydenham, or the diluting practice of Boerhaave prevailed in the Weſt Indies, as well as in Europe: It ſtill prevails among the French, but it, in ſome meaſure, yielded, among the Engliſh, upwards of

thirty years ſince, to a plan of evacuation, ſuggeſted by ideas of abounding bile: this has alſo given way to the faſhion of the times,—the application of ſtimulating powers. A fever appeared at Philadelphia in the year 1793,—of uncommon violence: evacuations by the lancet, and evacuations by the bowels were combined in a bold manner, and carried to great length in execution. The fever of Grenada, was alſo about the ſame time, attacked by the powers of mercury, on the idea of ſalivation. The opinions of men fluctuate in theſe uncertainties; and the intemperate zeal of parties, which ſtill prevails in America and the Weſt Indies, it is to be feared, will not much facilitate the progreſs of ſcience and truth. The author of this outline is of no party;—he gives to the public, the reſult of his own obſervations only.

The cure of the endemic fever of the Weſt Indies conſiſts of two parts,—the cure of a forming, and the cure of a formed diſeaſe. The firſt requires a ſpeedy, bold and decided execution; it is attempted upon the plan of changing forcibly the exiſting ſtate of things; the other requires caution and management,—means, under different conditions, ſeemingly oppoſite, and not referable to one general principle.

In the commencement of fever, whether the diſeaſe declares itſelf by the ſymptoms of a paroxyſm violent and in form, or only by headach and general uneaſineſs, the author has been in the habit, particularly in times of ſickneſs, and in ſubjects lately arrived from Europe, to order blood to be drawn from

the arm to the amount of twenty ounces or upwards. This, followed by a dose of physic,—salts and emetic tartar, or calomel and James's powder, is frequently sufficient to remove the complaint; but as it is improper to leave any thing to the chance of events, where certainty can be attained, such additional means ought always to be employed, as leave little doubt of ensuring the accomplishment of the object. The object is here a complete change of the existing state of things; and this will be effected with more certainty, if the blood be drawn from a large orifice, and permitted to flow till the pains remit, and the tide of the circulation be disturbed in its course; a quantity less than twenty ounces will seldom answer the end,—less than thirty ounces will not answer it in many cases; bathing or fomenting the lower extremities in warm water, during the operation, may be employed to contribute its aid; pouring cold water upon the head and upper parts of the body is also particularly useful at this time in exciting a new train of movement; a blister of large size on the neck and between the shoulders, gives additional security to the operation, and calomel with James's powder is, upon the whole, the best form of remedy for promoting the necessary evacuations, by the bowels and skin, essential to health; copious dilution, with drinks of tea or aromatic herbs is of some importance. If these means be employed under the proper circumstances,—viz. within the first six hours from the attack, and prosecuted with vigour and judgment, the disease will almost always

be cut ſhort in its courſe, or changed to the form of an intermittent:—ſo far the phyſician proceeds upon a principle,—the mode of cure is one in all forms; at later periods the views are dark, uncertain, and fluctuate according to relative circumſtances.

When the fever has paſſed into the ſecond day, the figure of action is in ſome meaſure eſtabliſhed; ſo that the view of cutting ſhort the progreſs abruptly, or even of effecting a change to an intermitting or remitting form is leſs certain: the plan of cure then requires a modification, both according to the period and the form of the diſeaſed action which has taken place.

In the firſt form, diſtinguiſhed by excitement of the vaſcular ſyſtem, the management of evacuation is a matter of much nicety. If the pain of the head be ſevere, with ſenſations of fulneſs and tenſion; the pulſation of the carotid and temporal arteries violent, with eyes red and turgid, the pulſe tenſe, confined, labouring, and as it were obſtructed; the heat ardent and concentrated, with burning ſenſations and anguiſh at ſtomach, the foundations of miſchief are laid, and deſtruction, unleſs ſpeedily averted, may be expected to be the conſequence. The ſucceſs of changing the ſtate of things is now uncertain; but the danger is ſuch, as to demand a bold and vigorous attempt. In the morning of the ſecond day, or before the exacerbation of that day has reached its higheſt point, the accompliſhment of the object is of fair promiſe; after that period, it will ſeldom be attempted to good purpoſe. It is an uſeful prelimi-

nary to begin with cutting off the hair, and ſhaving the head, to place the feet in warm water, and to allow blood to flow from the arm,—not as meaſured by ounces, but till the headach be removed, and the exiſting ſtate of the circulation actually changed; cold water, or rather water artificially cooled, by the ſolution of ſalts, being then poured upon the head, and upper parts of the body, the head waſhed, perhaps, with Cayenne vinegar, and a large bliſter applied to the back part of the neck and between the ſhoulders, the patient laid in bed, ſupplied plentifully with drink, cool, refreſhing, and gently ſtimulating, or warm, aromatic and diffuſible, there is good reaſon to expect the commencement of a new and favourable train of movement; the operation of James's powder, to which calomel, in moderate doſes, may often be added with advantage, will be found uſeful in promoting this view, and in ſupporting it when begun. If the change alluded to takes place, and advances progreſſively, intermiſſion, at leaſt remiſſion may be expected in a ſhort time; but if the end be not attained, or there appear no decided indications of it in leſs than three hours, the bleeding muſt be repeated, with new affuſions of cold water, and the adoption of the bold meaſure of moving the patient in a cart, carriage, or ſpring-waggon, through the pure air, ſheltered, by boughs of trees, in the beſt manner poſſible, from the direct rays of the ſun. This is a practice, which has ſeldom been employed by profeſſional authority; but it is a practice, when tried by accident, far exceeding all others in its be-

nefits. There are various means, which irritate and ſtimulate; but the affuſion of cold water, and geſtation in pure air are the only, or the principal ones, which give permanent energy to the healthy action of the human ſyſtem: frictions, and, perhaps in preference to others, frictions with mercurial ointment, to the epigaſtric regions particularly, may be employed to contribute their aid. If ſome local injury hath not already taken place, our views, if the means be well executed, will ſeldom be diſappointed.

It is probable, the counſel here given will be deemed by many the counſel of a raſh man,—a man regardleſs of the life of others; the truth is, a regard, —and an ardent regard for human life, dictates the advice; the means recommended, under the circumſtances deſcribed, are not dangerous; the conſcience of the author does not accuſe him of acting raſhly; it has often reproached him with the oppoſite,—with ſuffering men to periſh, through half meaſures and want of deciſion.

So far we act upon principle, but if the diſeaſe be advanced to the evening of the ſecond, or morning of the third day, the original object is no longer in view: ſigns then ariſe, which indicate an approaching remiſſion, or which give reaſon to ſuſpect that the foundations of injury or deſtruction are laid in organs, or in a ſeries of parts;—to mark thoſe conditions preciſely in deſcription is difficult, but the end is important. In the firſt place, if heat be equally diffuſed through the different parts of the body, and partake of the nature of warmth, rather than of that

ardent and cauſtic pungency, which communicates a diſagreeable ſenſation to the hand; if the ſkin ſeem thin and ſenſible, the pulſe conſiderably more frequent than natural, energetic in its contraction, free, or not obſtructed, regular in time and force, advancing progreſſively to an acme; in other words, if what is termed re-action of the arterial ſyſtem be completely eſtabliſhed, with a diminution of anguiſh and internal heat, there is reaſon to expect that a remiſſion will take place; in which caſe, the decided ſteps recommended above are not only unneceſſary, but dangerous. If, on the other hand, heat be unequal,—moderate on the extremities and ſurface lightly touched,—ardent and cauſtic, about the præcordia, or on deep preſſure; the ſkin dry, thick and of diminiſhed ſenſibility; the ſenſations of anguiſh and internal heat diſtreſſing, with nauſea and glutinous vomitings; the pulſe irregular in time and force, communicating an idea of obſtruction or obſtacle, ſwelling languidly, falling or contracting without energy, the foundations of injury in organs, moſt commonly in the organs of the viſcera of the abdomen are laid, or the exhauſtion and loſs of power of a ſeries of parts approaches, in which caſe the plan of evacuation recommended above has no place. The radical cure of fever conſiſts in changing diſeaſed motions,—in exciting re-action, and in encouraging determination to the ſurface of the body; but the powers of medicine cannot, at this period, undertake a cure on that principle, with ſafety or effect. Congeſtions are local, and evacuations, from the ſeat of

theſe congeſtions, afford the beſt, perhaps the only hopes of relief. The viſcera of the abdomen, the biliary and myſenteric ſyſtems, are, in a manner ſurcharged,—their functions ſuffocated and oppreſſed. It appears on the inſpection of dead bodies, that, under a certain condition of things, the cure can only be attempted by copious and effective evacuation from the alimentary canal.—Calomel has been ſuppoſed to anſwer this purpoſe beſt; and it is evident, that the purgative ought to be ſmall in bulk and powerful in effect:—the cathartic extract is probably a good addition. But though the main indication conſiſts in briſk and active purging, by remedies that poſſeſs, or have added to them a ſtimulating ingredient; frictions to the abdomen, particularly frictions of mercurial ointment, ought not to be neglected;—they are of ſervice, perhaps by the action of ſimple friction, as well as by the qualities of mercury, ſtimulating to exertion the torpid veſſels of the ſurface; waſhing with cold water is always refreſhing, and, after the ſenſibility of the ſkin is in ſome meaſure reſtored, it is of conſiderable benefit; but the great and important remedy, and the only one perhaps, by which the effects of purgatives can be rendered extenſive, is agitation in pure air,—even rapid motion in a carriage or ſpring-waggon:—The benefits of accidental trial decree it to be a remedy of common reſort.

The cure of fever, of whatever form, proceeds upon one principle in the forming ſtate of the diſeaſe; in the advanced progreſs relative circumſtances

are wholly, or chiefly to be regarded. In the firſt form of fever, the action of the vaſcular ſyſtem is always irritated,—often preternaturally increaſed; and, in conſequence of this increaſed action, criſis is frequently effected by ſweat or ſome other evacuation; in the ſecond form, this rarely occurs; and as effective ſalutary evacuations ſeldom then take place, the cure becomes neceſſarily a work of art. In the ſecond, and even third day of this ſecond form, the ſymptoms are uſually ſo moderate in appearance, as not to occaſion alarm; yet deſtruction is proceeding with a ſteady and even rapid pace. In this period, when the ſkin is dry, duſky, and as it were withered, the lips dry and the tongue little changed from its natural aſpect, the ſenſations of fidgetting and uneaſineſs undeſcribable, the pulſe ſluggiſh and without energy of contraction,—little diſordered in time, but minutely obſerved, giving an impreſſion of obſtacle or confinement, ſecretions impaired, the excretions of urine and ſtool ſuſpended, blood may be drawn with ſafety; and it ought to be drawn in quantity, till a change of the exiſting ſtate of circulation be effected. The aid of the means mentioned above, bathing, fomenting or waſhing with warm and cold water alternately, bliſters to the neck and back, frictions, doſes of James's powder, with or without calomel occaſionally repeated, copious dilution, with grateful and gently ſtimulating drinks, and, in a more eſpecial manner, travelling in a carriage or ſpring-waggon, expoſed to the air, is required to begin the ſalutary move-

ment, and to ſupport it when begun. But if a favourable change,—a developement of the vaſcular ſyſtem do not manifeſt itſelf, in three hours at fartheſt after the above meaſures have been employed, the repetition of the bleeding, bathing and travelling is indiſpenſable;—an object has been placed in view, and till the accompliſhment of the object be attained, there can be no remiſſion of endeavour. Common opinion will perhaps fly with horror from the practice here recommended, in what is vulgarly called the ſinking ſtate of fever; but experience has proved it to be ſafe,—ſafer than when fever runs high: re-action is then begun, and and where re-action is begun and eſtabliſhed evacuation is often dangerous, for it interrupts a courſe of things, pointing to a ſalutary object.

But if the fever be advanced to the evening of the third, or beginning of the fourth day;—in ſhort to that period, earlier or later, at which the fibre loſes irritability or active motion, known by defect of animation of countenance, by veins in the eye large and red,—as if injected, by a duſky and olive colour, a ſkin dry, thick, and like a dead hide, a pulſe without energy and force, little, diſturbed in time, nauſea, or pituitous and flaky vomitings, offenſive taſte in the mouth,—the forerunner of oozings of blood from the alimentary canal, the danger is extreme; yet in ſuch caſes, the powers of life have ſometimes extricated themſelves; and the following means appear to have been the beſt helps; viz. bleeding to a certain extent, purging by briſk

and ſtimulating purgatives,—calomel, burnt alum, and waſhing the body frequently, with cold ſalt water, with vinegar, with brandy or with ſpirits of wine and camphire, frictions with mercurial ointment, and above all, the act of moving in a carriage, through pure air.—The author is aware that the mention of bleeding in the above condition of things will revolt the greater number of medical practitioners; but experience has proved that bleeding may be performed, under ſuch circumſtances without deſtroying life; and appearances, after death, ſeem to ſuggeſt that it is an appropriate remedy. The venous ſyſtem is turgid in an extraordinary degree, and common ſenſe concludes, that the firſt ſtep, towards removing the congeſtion, is by direct evacuation.

Conditions ſometimes ariſe, under the ſecond form of fever, which require attention in practice. Inſtead of torpor and ſluggiſh motion, dry and withered ſkin, as mentioned above, it is found that ſpaſms in different parts of the body,—moſt frequently in the bowels, with obſtinate coſtiveneſs or irregular purging, tremors, ſtartings and other ſigns of increaſed mobility, on ſome occaſions, conſtitute the leading feature of the diſeaſe. If the general ſenſibility be not impaired, bathings and opiates mitigate the pains; the local application of bliſters frequently removes them; the fever then aſſumes a diſtinct and regular form, and requires a mode of treatment correſponding to its form. If the principal ſymptom be dyſenteric, rhubarb with

calomel is a good purgative; and frequent repetitions of it are neceſſary: opiates and aſtringents are by no means ſafe; ſuppreſſion of evacuation is ſometimes the conſequence, and fatal coma the conſequence of the ſuppreſſion. If remiſſion takes place, but if the remiſſion be ſuſpected to be deceitful, by a certain gliſtening of the eye, difficult to be deſcribed, by a countenance ſerene, but with a tint of colour of vermilion bloom, lips and gums of a ſimilar deſcription, a clean tongue, a moiſt and ſoft ſkin with a ſwelling, but unenergetic pulſe, accompanied ſometimes with a ſmell like that of freſh fiſh, the moſt probable means of benefit reſide in frequent ablutions with cold water, in travelling in carriages or in ſpring-waggons; and in free evacuations, procured, in the moſt effectual manner, by calomel or other active purgative.

The method of cure, in the third form of fever, is ſubject to leſs change than in the others; the principle continues nearly one throughout: the blood ſeems to ſtagnate, or to move ſlowly in the veins; and the firſt view is evidently directed to accelerate its motion. This is attempted to be accompliſhed, and perhaps only can be accompliſhed, by bleeding. The blood in this form of diſeaſe is often of a colour unuſually dark, and flows ſlowly,—ſometimes flows only from preſſure along the vein, notwithſtanding that the orifice may be a large one. After it has flowed for ſome time in this ſluggiſh manner, the motion becomes accelerated, and the colour often changes to a florid red. The quantity of blood to

be taken away, in the early part of this diſeaſe, is not ſo much to be meaſured by ounces as by effects, —by a complete relief from the load of oppreſſion: thirty ounces ſometimes will not accompliſh this; and the author knows, that a greater quantity may be taken away at one time, without deſtroying, or even endangering life; yet in certain conditions, where the balance of things was ſo tickliſh, that there was a chance of great changes being followed by untoward accident, he preferred ſmall bleedings every hour or every two hours, till the evidence of reaction or increaſed motion was eſtabliſhed. When motion is reſtored, and the functions reſume their ordinary and healthy courſe, the affuſion of cold water upon the body, two or three different times in the day, expoſure to the pure air, and moving about in a carriage or ſpring-waggon, are of the moſt conſpicuous uſe in ſupporting a continuance of theſe renewed operations.

Such are the principles, which directed the cure of the different forms of the continued fevers of tropical countries: the cure of fevers of type next deſerves conſideration:

Fevers of type may be divided into regular and mild, inſidious and malignant. Theſe forms appear to be much under the influence of climate, conſtitution of ſeaſon, ſeaſon of the year and ſituation of place. In ſpring, ſummer and the earlier part of autumn, under rains or frequent ſhowers, in an open, champaign and cultivated country, or on the firſt ridge of mountain, the form is uſually regular, and

the ſymptoms are ordinarily mild; in the latter part of October, in the month of November, and ſometimes in December, or in the neighbourhood of offenſive ſwamps and foul ravines, at moſt ſeaſons, the form is often inſidious and malignant.

In the cure of the mild and regular intermittent there is not much room for remark. The progreſs of the diſeaſe may generally be cut ſhort by Peruvian bark; but a certain condition of things is requiſite to the ſucceſsful operation of that remedy. This condition appears to conſiſt in laxity or mobility of fibre, unconnected with local congeſtion, a condition attained with conſiderable certainty by the evacuations of bleeding, vomiting, by means of emetic tartar, purging, by catharics of briſk and extenſive operation; and, in many caſes, by the local application of bliſters. During the late American war, even in the ſouthern and more unhealthy provinces of that extenſive country, Peruvian bark, properly adminiſtered, ſeldom failed of cutting ſhort the courſe of the diſeaſe; the ſame effect was not obtained with certainty, from the ſame means in the remitting fever of Jamaica; but the exhibition of bark, notwithſtanding was even there, generally attended with benefit: in the Iſland of St. Domingo on the contrary, its benefits were very uncertain, as the circumſtances, which enſure its ſucceſs, were not perhaps in general ſufficiently regarded: the ſolution of arſenic was infinitely more effectual; and nothing occurred to furniſh ſuſpicion that the uſe of arſenic is unſafe.

It was remarked above, that in certain ſeaſons, in certain ſituations and in certain periods of the year, the character of the endemic is inſidious and malignant. The diſeaſe, under thoſe circumſtances, often begins regularly as a ſingle tertian; and two, or ſometimes three revolutions paſs over without giving alarm to ordinary obſervers; but at one or other of the above periods, a paroxyſm commences with coma, ſtupor and ſuſpenſion of functions, threatening immediate deſtruction; or, as often happens the energy of action becomes leſs and leſs diſtinct in every ſucceeding paroxyſm, the ſkin becomes dry, or damp and greaſy, the powers of life are overwhelmed, the pulſe contracts itſelf or becomes apparently weaker and weaker, under the uſe of bark, wine and the ſtrongeſt ſtimulants of the materia medica.

At a period of ſeaſon or in a ſituation of place where a diſeaſe of the character, above deſcribed, prevails, it will be a ſafe rule with the practitioner to truſt little to ordinary appearances; the ſigns of danger are not always eaſily read; and it is better to act harſhly, if by ſuch means life can be made ſafe, than by feeble and temporizing meaſures to permit the ſilent progreſs of deſtruction. It may be conſidered as truth, if there be truth in the ſcience of medicine, that the progreſs of fever can be cut ſhort, by no other means, than by new motions forcibly excited and duly ſupported. The preliminary of this proceſs conſiſts in evacuation;—forcible ſtimulation originates it, and tonic powers, conge-

nial to healthy action, ſupport it.—In the firſt place, bleeding is of indiſpenſable uſe; without it, on many occaſions, other evacuations, vomiting or purging, are of uncertain benefit, ſtimulating powers irritate, but do not increaſe action; and tonic powers, if they have any effect, increaſe the obſtinacy of diſeaſe. The quantity of blood to be taken away muſt, as in other caſes, be meaſured by effects; if the ſkin be obſtinately dry, with ſtupor, pain and confuſion of the head, the pulſe ſmall, confined, and obſtructed, little benefit can be expected from an evacuation of leſs than thirty ounces. When the effect in view, marked by relaxation of the ſkin and expanſion of the pulſe, has been obtained from bleeding, the evacuations of vomiting and purging may be entered upon without riſk of danger, and, for the moſt part, with promiſe of benefit; vomits of emetic tartar, and purgatives with calomel, have the preference; bliſters then alſo operate with effect, and large bliſters, on the neck and between the ſhoulders, conduce materially to ſafety. By ſuch means, properly followed up, perfect intermiſſion will in general be procured, and when intermiſſion, in conſequence of ſuch management has been completely eſtabliſhed, Peruvian bark may, for the moſt part, be truſted to for the effect of preventing recurrence of diſeaſe.

It is often obſerved, particularly in the latter months of the year, that remiſſions become leſs diſtinct, that the pulſe contracts itſelf, or in common language ſinks, under the free uſe of bark, wine

and ſtimulants: In this caſe, the lancet is indiſpenſable, and its benefits are unqueſtionable;—regular paroxyſms and remiſſions are the conſequence: remiſſions, as remarked, become ſometimes gradually leſs diſtinct, under ſtimulative powers; but the paroxyſm of the fifth day likewiſe commences, in many caſes, by a ſudden ſuſpenſion of the vital energies, ſuppreſſion of pulſe, and ſtupor not unlike apoplexy. When this accident actually takes place, it is proper and neceſſary to employ evacuation; the loſs of thirty ounces of blood, with other acceſſory means, then often reſtores, in the manner of a charm, the tide of circulation, and originates a new and better form of things. Common practice revolts from the idea; but experience has proved unequivocally, that it is by the uſe of the lancet only, that life, under the circumſtances deſcribed, can be expected to be ſaved.

SECT. II.

Remarks on Remedies Employed in the Cure of Fever.

Bleeding has been long employed in the cure of the fevers of tropical countries, particularly in the fevers of ſtrangers; but the practice has at all times had enemies as well as advocates, in the iſlands of the Weſt Indies. Opinions and faſhions rule the world; and the opinions of the medical world have, in all ages, been fluctuating and contradictory. It is thus that the real value of bleeding,—employed too often without a principle in view, or rejected

from a whim, does not appear as yet to be fixed upon a ſure foundation. The author does not know the preciſe conditions which indicate the uſe of the lancet, or the extent to which the practice of bleeding is carried in other iſlands; but he knows, that bleeding had no credit in the Iſland of St. Domingo in the year 1796. The prejudices of the greater number were ſtrong againſt it; and though former experience had furniſhed to him ſufficient proof, that it is not only ſafe, but neceſſary, as preparatory at leaſt, in the cure of fever, yet trials were here made with caution: the effects, or ravages of the diſeaſe were looked for in the dead body; and effects were uſually found, which pointed out unequivocally, the propriety,—even the neceſſity of the practice. A great majority of Britiſh practitioners deprecate the uſe of the lancet; and they deprecate it under an idea, that the loſs of blood debilitates, or accelerates a failure of the vital powers. The details of the preceding pages will perhaps convince thoſe, who are willing to be convinced of truth, that the opinion is erroneous and aſſumed; or, if in any degree connected with obſervation, that it ariſes, from not diſcriminating accurately between the effects of a remedy, and a quality of the natural courſe of a diſeaſe. Bleeding is chiefly employed, by Engliſh, and even by French practitioners, at times of high excitement, or increaſed action of the arterial ſyſtem; that is, under the conditions which immediately precede ſalutary remiſſion, or dangerous ex-

hauſtion;—a natural effect is thus often attributed to a cauſe of accident.

It is a matter of much conſequence, to define preciſely thoſe circumſtances which regulate the employment of bleeding in the cure of fever. If employed to ſufficient extent in the firſt hours of attack, as at the commencement of the vertigo and headach, or before the pulſe has aſſumed a confirmed habit of deranged action, the diſeaſe will, for the moſt part, be inſtantly removed, or, where not removed entirely, ſo broken and diſturbed as to aſſume an intermitting or remitting form. It is ſcarcely neceſſary to repeat, that this effect will be more certain,—perhaps can only be enſured, by a judicious management of the acceſſory means detailed above. But though the benefits of bleeding be of decided effect in the commencement of continued, and even of great power, in the commencement of the paroxyſms of periodical fevers; yet where the appearances of a continued, or even of a periodical fever advance by regular progreſs to a ſtate of reaction, which uſually precedes criſis or remiſſion, bleeding is improper,—perhaps dangerous in a high degree. Inſtead of facilitating or rendering the criſis more effectual, it ſeems often to accelerate collapſe or general loſs of energy. On the contrary, if the pulſe be ſmall, contracted, confined, obſtructed,—even imperceptible, with a dry, withered and impervious ſkin, or a ſkin greaſy, damp, and clammy, a countenance livid, reſpiration heavy and oppreſſed, without local pain,—a condition ſuperven-

ing ſuddenly, or ariſing under the uſe of ſtimulating powers, the loſs of thirty ounces of blood, or more, has often been unexpectedly followed by a developement of the action of the vaſcular ſyſtem :—even petechiæ, vibices and lividneſſes have diſappeared in conſequence of it, the pulſe emerging and a copious fluid perſpiration enſuing. It muſt however be remarked, that where theſe fortunate events took place in conſequence of bleeding, ſtimulating means of great power always made a part of the proceſs.

Bleeding is a remedy of great value in certain conditions of the fevers of tropical countries; but it is alſo in many caſes a remedy, not only unneceſſary, but improper,—and even dangerous. Where the diſeaſe is of a diſtinct intermitting or remitting form, where the paroxyſms are regular in all their parts, and terminate by copious perſpirations, with ſoftneſs, warmth and ſenſibility of ſkin, bleeding is unneceſſary; it is improper, where the ſkin, bathed in fluid perſpiration, ſeems to be of increaſed ſenſibility; where the pulſe lax and weak, is eaſily diſturbed by changes of poſture; and where fainting occurs from an increaſe of mobility, rather than from torpor.

Bleeding is neceſſary,—often indiſpenſable in endemic fevers,—according to common opinion it is deſtructive in fevers of contagion. It is not ſo in fact: whatever the original cauſe may be, the effects of a remedy appear to be ſimilar under ſimilar ſtates or circumſtances of diſeaſe; and experience has often proved, that benefit follows copious bleed-

ing, in the oppreſſive headachs, ſtupor and ſuſpended action of contagious fever, equally the ſame as in fevers of the other claſs.

Emetics, are employed, by ſome practitioners, in the fevers of the Weſt Indies on every occaſion, by others, they are condemned without qualification. In a plethoric, and particularly in a ſtate of ſyſtem torpid from plethora, with a dry, thick and impervious ſkin, emetics are not only improper, but dangerous; in remitting, and more eſpecially in intermitting fevers, they are on the contrary uſeful, ſeeming to facilitate in a particular manner, the ſucceſsful operation of bark; in tedious and lingering intermittents, or in ſlow convaleſcence, their good effects are often eminent; in ardent and continued fevers, they cannot be given without probable and material injury, unleſs preceded by loſs of blood, even to great extent.—In fevers of contagion, the exhibition of emetics is generally ſafe, and often beneficial, without preceding evacuation; judiciouſly managed emetics ſometimes cut ſhort the courſe,—for the moſt part they contribute materially to render the form of the diſeaſe mild and regular.

Purgatives of various kinds are employed in the cure of fevers, and purgatives are thought by Engliſh practitioners to be peculiarly adapted to the cure of the fevers of hot climates. The idea ſeems to have originated in an opinion of abounding bile; an appearance which certainly obtains among men, who oppreſs the functions of the alimentary canal with ſtrong drink and groſs aliment. Purgatives

are numerous;—it will be proper to mention a few of the principal.

A pill of five or ſix grains of calomel, carried off by a ſolution of bitter purging ſalts, was a favourite practice in Jamaica, upwards of twenty years ago; and in the ordinary diſeaſe of the country, among ſeaſoned ſubjects, it appeared to have advantages: a ſolution of the ſame ſalts, with a portion of emetic tartar, given in ſmall and frequently repeated doſes, was alſo employed very commonly; and, where the fibre is tenſe and poſſeſſes ſenſibility, it is ſafe and of extenſive effect; it is upon the whole a good form; and, with additions according to circumſtances, may be ſo managed as to anſwer complex indications. Julap and calomel has lately obtained great praiſe; it is a form of purgative of frequent uſe with the ſurgeons of the army, in times of ſervice; and in intermitting, or in remitting fever, with a tendency to congeſtion in the viſcera of the abdomen, its benefits are evident.—Calomel with James's powder, aided by plentiful dilution of warm and diffuſible drinks, which ſtimulate the minuter veſſels, ſeems, upon the whole, to be the moſt extenſive and beſt evacuant.

It is often obſerved, particularly in the concentrated forms of this diſeaſe, that the ſenſibility of the alimentary canal is materially impaired, its action, in ſome degree, ſuſpended;—the moſt powerful purgatives do not act, or they act by ſtarts,—the ſtools, though ſometimes large, are watery and ineffective,—a ſenſation of defective power of eva-

cuation ſtill exiſts,—ſometimes with a conſiderable degree of tenſion. The ſtimulating forms of purgatives are perhaps the beſt adapted to this caſe; but complete relief ſeldom arrives till a natural period of criſis, or till the ſenſibility of the fibre has been reſtored by copious bleeding, bathing, and motion in the open air.

In intermitting and in remitting fever, the repetition of purgatives ſeems to render the paroxyſms and remiſſions more regular and diſtinct; but purgatives have little effect in cutting ſhort the courſe of the diſeaſe: in ardent and continued fevers, with much vaſcular excitement and a dry ſkin, as well as in continued fevers, with a dry, withered ſkin, and ſluggiſh action of the vaſcular ſyſtem, the good effects of the practice of purging have appeared to the author in a very queſtionable ſhape. The bowels, it has been obſerved, are often torpid, and reſiſt with obſtinacy powerful doſes of draſtic purgatives; when they do obey, the evacuations are commonly at irregular periods,—or by ſtarts,—large and watery, but without effective relief; the external heat perhaps ſubſides, but the ſkin becomes, in proportion to the extent of the evacuation, dry, withered and impervious; no remiſſion is obtained; on the contrary, the unfortunate event appears to be accelerated, under the conditions defined, by the uſe of purgatives. The circumſtances, which regulate the uſe of purgatives in the cure of endemic fevers, demand a ſimilar conſideration in the cure of fevers ariſing from contagion.

Bathing. Warm bathing is a remedy of common uſe in the fevers of the Weſt Indies, both with Engliſh and French practitioners; but it is a remedy, neither ſerviceable nor ſafe in full and plethoric habits; bleeding then is indiſpenſable, either as preceding, or as employed at the time of the immerſion: to determine the proper time of remaining in the bath is of eſſential conſequence, for it is not uniformly one; it muſt be regulated by circumſtances;—a given effect,—a change of the exiſting ſtate of things, is the object of the bathing, the means of accompliſhing which, ought not to be intermitted till the effect be attained;—any portion of time leſs than an hour, will ſeldom be ſufficient to make a proper impreſſion on the ſyſtem.—Nearly allied to warm bathing, are warm fomentations to the trunk and extremities; theſe are more manageable, can be continued longer without fatigue or inconvenience, and, upon the whole, are not leſs beneficial.

Cold Bathing, has been frequently employed in the fevers of hot climates, but it has not always been employed in a proper manner, or under proper circumſtances. Cold bathing is, in moſt caſes, followed by agreeable ſenſations, and a temporary relief; but its effects are not permanent or extenſive, perhaps not ſafe in full habits, or under the torpor of plethora. In ſuch circumſtances, it has not been found to do good in yellow fever; and employed frequently under ſuch circumſtances, it has been conſidered, by many, as a remedy of little

value: the author however is confident to maintain, that where the ſenſibility of the fibre has been reſtored by previous bleeding, and other ſuitable proceſſes, no remedy in the circle of medical aſſiſtances produces ſuch beneficial and permanent good effects,—travelling perhaps excepted. Its good effects are eminent, when employed under proper circumſtances in the endemic fever of tropical countries; in the contagious fevers of ſhips and hoſpitals, cold bathing and waſhing with cold water, exceed in benefit, all the reſources of the medical art. But cold bathing like all other remedies requires a certain condition of things, to enſure the ſucceſs of the application; and it generally happens, that where the condition is diſregarded, a fault is charged to the remedy, which in reality belongs to the judgment of the preſcriber.

Geſtation and travelling in carts, carriages, or waggons, would probably never have been viewed in the light of a remedy, under the actual exiſtence of fever, had not military ſervice often produced the neceſſity of trial, and repeated trials evinced the beneficial effects of the practice. It muſt indeed be acknowledged, that inſtances of ſuch trials have not been numerous in St. Domingo; they have however been ſufficient to ſhow, that motion in pure air is capable of effecting the ſame favourable changes here, as in Europe or in North America. On various occaſions, under the inconveniencies of a ſcorching ſun, of clouds of duſt, and of a jolting cart, on bad roads; the anguiſh at

ſtomach, the inexpreſſible anxiety and fidgetting, ſo diſtreſſing in the fevers of the Weſt Indies, have ſuddenly diſappeared; ſuſpended ſecretions have been reſtored, and the marks of remiſſion have become evident and diſtinct. In contagious fever, the advantages of moving through pure air are ſo decided and unequivocal, that it is unneceſſary to dwell upon the ſubject.

Bliſters are frequently, perhaps too indiſcriminatly employed by Engliſh practitioners in the fevers of the Weſt Indies; they are reſorted to by the French, when other reſources are exhauſted. In conſidering this ſubject, it is neceſſary to examine the ſtate of things minutely, ſo that fixed rules may, if poſſible, be diſcovered to direct the proper times and circumſtances of application. In this manner, where there are ſevere local pains, with a ſenſible, warm and glowing ſkin, the good effects of bliſters are obvious and acknowledged; on the contrary, where the blood veſſels are turgid, the action of the arterial ſyſtem oppreſſed, the pulſe ſmall and confined, the ſkin withered, torpid, thick and dry, or damp, greaſy and cold, the good effects are equivocal; in ſuch caſes bliſters do not riſe at all, or they riſe imperfectly, and the bliſtered parts become ſpeedily dry, duſky and livid. Bliſters, without preceding evacuation,—and that to the extent of reſtoring ſenſibility to the fibre, are ſeldom uſeful; inſtead of allaying pain and removing ſpaſm, they ſeem to irritate and increaſe conſtriction; on the contrary, when the action of the vaſcular ſyſtem

has become free,—with reſtored ſenſibility, their good effects are conſiderable in correcting irregular determinations; they often reſtrain vomiting, ſometimes remove hiccuping, applied to the epigaſtric regions; they generally relieve the ſevere and acute pains of the head, applied to the temples or nape of the neck.

The remedies mentioned above are ſuppoſed to act upon the diſeaſe, by producing in ſome degree a general effect upon the ſyſtem; a few will now be noticed, the operation of which is more particularly directed to ſymptoms or local derangements. Vomiting, or a conſtant deſire to vomit is one of the moſt diſtreſſing and untoward ſymptoms, in the fevers of tropical climates. The means of reſtraining it are, in no degree, certain; dependence has been placed on bliſters; but bliſters have not good effects under an exiſting torpor and impaired ſenſibility; anodynes calm irritation, but they do not remove a fixed diſeaſe; and they are of no value in a certain ſtate of progreſs to diſorganization. The appearances of the coats of the ſtomach and inteſtines, after death, ſuggeſt the trial of remedies on the principle of local application. The veins of the inner coats of the ſtomach are generally turgid, as if injected; while the villous coat is thick, ſpongy and looſe generally, or in irregular patches,—ſometimes actually ſeparated, the veins being every where diſtended, as in atonic inflammation. Under a preſumption of this condition, or of an approach to it, a ſolution of white vitriol in camphorated ju-

lap was tried on many occaſions; and it frequently reſtrained the vomiting, in an unexpected manner. It appeared further, when given at an early period, to be of ſervice in preventing the above ſtate of things from taking place. Solutions of ſugar of lead had ſimilar effects, in ſeveral inſtances; burnt alum, Cayenne peper, &c. appeared likewiſe to be of benefit; æther frequently gave temporary reſpite; brandy and water, or briſk ſpruce beer were among the kinds of drink beſt reliſhed by the patient;—wine was nauſeous to a degree.

SECT. III.

Remarks on Different Methods of Cure.

The author does not intend to enter into a detail of the practices of others, in the cure of fevers; but he thinks it will not be ſuperfluous to ſtate the general outlines, as far as he has been able to perceive them with any tolerable accuracy.

In contagious fever bleeding has been religiouſly avoided; but the experience of the author warrants him to ſay, that it not only, is not a fatal practice, but that under many circumſtances, it is an uſeful one. Emetics, in the commencement, have general reputation; and their beneficial effects are well eſtabliſhed: purgatives ſeemed to be only of ſecondary conſideration, with moſt practitioners: the principal view appeared to conſiſt in ſtimulating, even from an early period, and often without preceding evacuation. Dover's powder, James's powder, with

opium in great and frequent doſes, camphire, cordial confections, bliſters, bark, and an unmeaſured quantity of wine, were the principal remedies, as far as the author had an opportunity of obſerving: the uſe of cold water,—of waſhing or bathing, was little known; the accumulation of filth was often prodigious; and from want of diſcipline, among the orderly attendants in the hoſpitals, what was probably well ordered, was ſeldom well adminiſtered. It is not neceſſary to add any further remarks;—the practice on the continent is not given as an example of imitation.

The more general method of cure, in the endemic fever of tropical climates, hinges upon procuring remiſſion by means of purgatives; the known virtues of bark are ſuppoſed ſufficient to complete the reſt. Salts with emetic tartar, julap with calomel, or calomel with antimonial powder are the more common forms, by which this object is attempted to be accompliſhed. In fevers fundamentally of type, the purpoſe will often be effected; but in fevers ſo concentrated, that the dawnings of remiſſion are ſcarcely perceptible, the expectations of ſucceſs are uncertain. If the fibre retains ſenſibility, or if it has recovered ſenſibility, in conſequence of bleeding, the benefits of purging are often evident; if torpor prevails, the effects appear to be hurtful. The ſecond part of this method of cure, conſiſts in ſtimulating by wine, opium, camphire and bliſters; or in preventing recurrence by large and often repeated doſes of bark. The view is good, but it is

a view ſo much relative to the condition of exiſting circumſtances, as to require accurate diſcernment in application: this perhaps has often been deficient; for the mortality of the more violent forms of fever, under this mode of treatment, is found to be uncommonly great.

A fever appeared, at Philadelphia, in the year 1793, 1794, and 1797,—of great force and unuſual mortality; in the cure of which, a combination of evacuations,—bleeding and purging to great extent, obtained general credit, among the more enlightened and induſtrious practitioners of that city. The view is wholly directed to depletion; and the quantity of blood which has been taken away, on many occaſions, by the phyſicians of Philadelphia, without deſtroying, or even endangering life, appears enormous; furniſhing a fact, which cannot fail to confound thoſe who have aſſerted, that bleeding is improper in the violent fevers of hot climates, even that the loſs of a few ounces of blood is almoſt a certain cauſe of deſtruction. The principle of cure, among the phyſicians of Philadelphia, hinges, as obſerved, wholly on depletion. The author of this outline employs their chief remedy; but he employs it with a different view, and with different management. At Philadelphia ſixteen ounces is reckoned a large bleeding; but bleeding to this extent is often repeated, and accompanied with ſtrong mercurial purges, all tending to diminiſh the ſuppoſed, or real increaſed action. Here bleeding is directed to the amount of thirty ounces, or up-

wards; in ſhort to ſuch extent, that an impreſſion be at once made upon the ſyſtem; after which, ſuch powers are recommended, as ſtimulate to a train of action, congenial to the action of health. The principle is different, in as much as there is a difference between interfering and leaving a buſineſs in the middle, or in interfering and conducting it forcibly to an iſſue.

A new method of treating fevers has ariſen, within theſe three or four years, in the Weſt Indies, which has greatly amuſed the medical world. Calomel alone, or with the addition of different purgatives, has been long employed as an evacuant, in the cure of recent fever, particularly of the remitting kind, and often with ſuperior advantage; but the diſcovery of its virtues as a general remedy, and on the grounds of ſalivation, is as far as the author knows, due to Dr. Chiſholm. Dr. Chiſholm in general terms, poſitively aſſerts the ſucceſs of calomel in the cure of fever; the detail of his teſtimonies does not warrant a concluſion ſo favourable; for the proportion of mortality, in the detachment of Royal Artillery, upon whom this practice is ſuppoſed to have been firſt tried, has perhaps ſcarcely ever been exceeded in a tropical climate. In St. Domingo calomel has had numerous trials, in every form of the diſeaſe; and though vague obſervation ſpeaks in its favour, accurate experience leaves its good effects in doubt. The general reſult ſeems to be the following. In fever of an intermitting or remitting type, where the ſkin is ſoft, warm and

ſenſible, the action of the vaſcular ſyſtem free and unconfined; in ſhort, where the diſeaſe is mild, the mouth is often affected at an early period; and as the mouth becomes affected, the violence of the febrile ſymptoms, in moſt caſes, abates; on the contrary, where the diſeaſe is continued and ardent, or ſlow and creeping, with diminiſhed ſenſibility of the ſkin and impaired energy of the vaſcular ſyſtem, enormous quantities of calomel, either produce no viſible effect, or the gums become ſpongy and livid, but no ſalivation enſues:—the event is then unfortunate, or life emerges in a gradual manner. Further, it is a common obſervation, that where ſalivation actually takes place in continued fevers, it ſeldom ſhows itſelf till the violence of the ſymptoms has evidently abated: hence a ſuggeſtion ariſes, that the appearance of ſalivation is only an indication of the departure of diſeaſe:—no proof exiſts, that the operation of the mercury is the cauſe of this departure. Such are the remarks which occurred in reviewing different modes of treatment in the hoſpitals of St. Domingo; to which it will not be ſuperfluous to add an experiment made at the Mole, in Auguſt 1796 by Mr. Lind, ſurgeon to Jamaica. Out of fifteen caſes of fever, which were put under the care of Mr. Lind on the firſt day of the diſeaſe, and treated with the utmoſt attention, five died; in three of whom ſalivation actually took place; five recovered; in whom no ſalivation took place, in the other five; who alſo recovered, ſalivation was evidently eſtabliſhed, but, as is uſual, not

till the violence of the ſymptoms had begun to abate. Out of four, who were put under his care on the ſecond day of the diſeaſe, no one died, but one only was affected by the mercury. One brought to the hoſpital on the third day of the illneſs, died; mercury was employed, but no ſalivation took place; one, on the fourth, likewiſe died, without marks of ſalivation; one on the fifth,—the ſalivation was eſtabliſhed, but the diſeaſe proved fatal. In none of the above caſes were leſs than ten drachms, and in moſt not leſs than two ounces of ſtrong mercurial ointment rubbed into the legs and thighs, with the employment of all other means, which ſeemed calculated to promote the expected effect. The ſucceſs of this experiment, and it was fairly made, by a man on whoſe accuracy dependence may be placed, does not encourage a proſecution of the plan of attempting to cure fever by exciting ſalivation, or by affecting the ſyſtem with mercury; yet though others muſt have met with ſimilar diſappointment, there are as yet no ſigns of the practice being diſcontinued. The operation of mercury involves a myſtery; and the management of it does not require the exerciſe of thought and reflexion; for there does not appear to be any other rule to direct, than that of giving mercury inwardly, or applying it outwardly, to all men, in all conditions, till the effect of ſalivation is produced. The effects of this remedy are known in numerous inſtances to have brought life into danger; and the uncertainty of the operation of calomel, (ſix grains,

at one time occaſioning a complete ſalivation, ſixteen hundred at another not producing this ſuppoſed ſalutary effect), ſeems ſtaking the life of man upon the hazard of an accident, over which there is little controul.

It would not be proper to diſmiſs this ſubject without noticing another faſhionable remedy,—eſſence of ſpruce. This remedy has acquired credit in the navy, and probably not altogether without foundation. It often is found to act as a purgative,—to promote ſecretions by the ſkin; and on ſuch grounds, given in the forming ſtate of fever, or in fevers of an inferior degree of violence, benefit may reaſonably be expected from it; but it has no claim to a ſpecific virtue in the cure of the yellow fever.

The practice of French phyſicians, in the cure of yellow fever, has been oſtentatiouſly contraſted with the practice of the Engliſh, and its ſuperior ſucceſs has been loudly boaſted by many. The ſole view of the French is directed to dilution,—in expectation of a coction of humours. The French bleed,—in ſmall quantity for the moſt part; but they repeat the operation frequently; they avoid purgatives, till they ſuppoſe the humours to be in a certain ſtate of coction, but they employ glyſters of decoctions of herbs, at very ſhort intervals, drench the patient with nauſeous ptiſans, with lemonades, and ſometimes with beverage of cream of tartar; the warm bath is uſually employed ſeveral times in the courſe of the day; poultices of cooling herbs are applied to the ſtomach and epigaſtric regions, in caſes of

pain and internal heat: camphorated julap, with a little nitre, Hoffman's anodyne liquor, with a few drops of laudanum, blifters to the legs and thighs, when things become defperate, comprehend the routine of French practice,—a routine, known to every nurfe, and apparently employed by the nurfe, with the fame difcernment as by the phyfician. The French do not ufually venture upon large bleedings at a time; and it is difficult to make them comprehend the effects of ftimulating after evacuation, or of decidedly cutting fhort the courfe of a difeafe by active practice. Upon the whole, the progrefs of fever is lefs rapid under the management of French, than under the common management of Engliſh practitioners; recovery is alfo more flow, but relapfe is lefs frequent. The author cannot fpeak pofitively of the difference of mortality; it is much lefs than might be expected from the directly oppofite methods of treatment; for in moft of the towns on the fea-coaft, two-thirds at leaft, of any given number of European foldiers, will be found to perifh before the expiration of the year, whether treated by French or Engliſh phyficians.

The above are the principal methods of treatment employed by practitioners, in the cure of the fevers of the Weft Indies. They all appear to proceed on the fuppofition of the knowledge of a proximate caufe,—debility, increafed action, bile, lentor or fome other arbitrary fuggeftion of fancy. Such practice is literally at random, fometimes innocent, but never capable of bringing an object diftinctly

and ſpecifically under view; for whether we dilute, deplete, purge off abounding bile, or ſtimulate the nervous energies to higher action, we proceed to a certain point, at which we remain bewildered. An event may perhaps take place, but we have no controul over it;—we know not with certainty what we ſeek; we conſequently interfere, and leave the buſineſs in the middle. If we proceed on the idea of changing the exiſting ſtate of things, we proceed upon a certainty. We know, or ought to know when this can be accompliſhed; and we know, under what conditions, the aids of the medical art can originate new forms of action, or reſtore the healthy operations of the ſyſtem. The object will too often be beyond the reach of attainment, but even to know the limits of our power is ſatisfactory.

CHAPTER XII.

Conſequences of Fever.

The preceding pages preſent an outline of the hiſtory and cure of fever,—endemic and contagious: it is there remarked, that thoſe diſeaſes attended to in the commencement, and treated with vigour upon a ſound principle, while in the act of forming, are much under the controul of the medical art;—neglected, treated upon a wrong principle, or upon a ſound principle feebly executed, they run the natu-

ral courſe, often prove fatal, or loſe the febrile form in derangement of an important organ. The propenſity of the human body to obey laws of periodical movement, more particularly in tropical climates, is known to the moſt ſuperficial obſervation. In conformity to theſe laws, the febrile form of diſeaſe is found to ceaſe,—to ſubſide, or to change at given periods; but the actions of health are not in conſequence always uniformly reſtored. Few inſtances of fever occur, where every part of the body ſuffers alike during the vigour of the diſeaſe; and as one part is more affected than another, in conſequence of more general or accidental cauſes, the natural action of thoſe parts, being thus more deranged, is more difficultly reſtored at the periods of critical movement; in other words, a local affection remains after the formal fever has abated, the final removal of which is tedious and uncertain. There are few parts of the ſyſtem exempt from theſe irregular affections, though the alimentary canal and liver ſuffer particularly,—and in a multitude of ways. But in order to give ſome idea of the derangements produced by the local action of fever,—endemic or contagious, it will be proper to deſcribe, in a curſory manner, the ravages which appear upon diſſection after death:—on this foundation only, it is poſſible to build a rational plan of cure.—The moſt of the appearances here deſcribed are common effects of fever in general; but the following obſervations were chiefly made upon ſubjects, who had ſuffered from the endemic of St. Domingo.

SECT. I.

Appearances on Diſſection.

The *Brain* appears upon diſſection to be more or leſs affected in the majority of ſubjects, who die in the acute ſtate of diſeaſe, or under the actual influence of fever; the membranes, as noticed above, are then inflamed, or the blood veſſels, turgid to an extraordinary degree, give an appearance of commencing gangrene, rather than that of inflammation, properly ſo called; water is ſometimes found in the ventricles, with evident effuſion in the interſtices; but this is an effect,—not general,—not even frequent. In chronic ſtates of illneſs, conſequent to fevers, the functions of the brain are often impaired, but the traces of exiſting derangement are not always viſible: yet in ſome caſes, the veſſels are found to contain little or no red blood, the ventricles and all the interſtices are full of water, and the whole ſubſtance appears pale, and as it were macerated. —In the above ſtate of things, the prominent features of diſeaſe, previous to death, conſiſted in a pale and lifeleſs aſpect, in a ſtate of pulſe uncommonly ſlow, —perhaps under forty, power of motion diminiſhed in an extraordinary degree, but without actual palſy.

The *Lungs*, in many inſtances of ſubjects who die of fever in the acute ſtage, appear to be ſuffocated or oppreſſed, reſembling a ſponge filled with black grumous blood; they appear alſo in ſome caſes to

be irregularly inflamed, and in not a few to be ſpotted in the back parts, the blood ſtagnating from poſition. Such appearances occur frequently; but chronic diſeaſe, and death from derangement of this organ in conſequence of fever, is rare among Europeans in the Weſt Indies. In ſome inſtances adheſions are formed between the membrane of the lungs and pleura;—even collections of matter are found frequently under the ſternum; but this is ſeldom a ſolitary appearance, or to be reckoned as a cauſe of death; it is uſually connected with ſomething ſimilar in other parts, being in fact a mark of a general diſpoſition in the habit, to form abſceſs in the cellular membrane.

The *Liver* ſuffers materially during the actual exiſtence of fever, and is often much deranged by its conſequences. It thus happens not unfrequently, that abſceſs being formed in the liver, and adheſion taking place between its coverings and thoſe of the diaphragm, the diaphragm becomes affected, at laſt eroded, and the matter finds paſſage through the lungs, giving an appearance of pulmonary conſumption; in other caſes, the abſceſs formed, in a ſimilar manner, in the ſubſtance of the liver, has appeared to diſcharge itſelf through the biliary ducts into the alimentary canal; or the inflammation being vigorous in the external coats and ſkirts of this organ, adheſion is formed with the colon, duodenum and neighbouring part;—eroſion takes place, and the matter eſcapes into the tract of the inteſtines;—theſe adheſions and eroſions are often of great ex-

tent: it is further obſerved that the liver appears ſound externally on ſome occaſions, the application of the knife only diſcovering an internal abſceſs, which had not found exit at the period of death. To the above may be added, the very common occurrences of changed organization and enlarged dimenſions, in conſequence of which the functions are impaired or aboliſhed.

Alimentary Canal. The ſtomach and ſmall inteſtines ſuffer, as noticed before, in the actual ſtate of fever, and often ſhow derangement, the effect of the immediate diſeaſe, which has obviouſly a ſhare in occaſioning death; even in thoſe ſubjects who die of chronic dyſentery, the inner coats of the ſtomach and ſmall inteſtines often appears looſe, or in the act of ſeperating, the mucus is red like brick duſt, and in great abundance; but though this be the caſe frequently, the ſeat of the chronic diſeaſe is principally confined to the tract of the colon and rectum. The ſtructure of the coats of thoſe parts is changed; they are thickened in ſubſtance; the veins are large and diſtended; the general colour is grey, duſky, olive,—in ſome parts livid, or tending to gangrene; the capacity is diminiſhed in one place, enlarged in another: the inner coats are ulcerated in various manners and degrees, the ulcerations are ordinarily of the ſize of the nail of a human finger, ſometimes larger, ſometimes ſmaller; they are of different degrees of depth, ſometimes nearly ſuperficial, ſometimes penetrating to the outer coat; the ulcerated

ſurface is ſometimes unequal, interſperſed with whitiſh granulations, ſometimes covered with thick and real matter, ſometimes foul, with bloody ichor or ſanies, ſometimes covered with dirty grumous blood, and livid to a conſiderable extent around. The colour of the omentum, meſentery and meſocolon is grey, duſky and olive; the veins are diſtended, as if injected, or as if the blood had ſtagnated previous to death:—numerous glands red, inflamed or lived, of the ſize of a common pea, but of an oval figure, are ſcattered in many inſtances on the ſurface, particularly near the connexion with the inteſtine.

The above are the more remarkable traces of the changed forms of the fevers of the Weſt Indies, as they conſume ſlowly by obſtructions or changed organization, ending in abſceſs or ulceration of important organs; but it muſt be remarked further in this place, that the courſe of fever appears, on many occaſions, to be ſuſpended;—hopes are entertained of a ſpeedy return of health, when unexpected relapſe ſpeedily terminates exiſtence. In ſuch caſes, effuſion or gangrene in vital or important organs are the chief appearances obſerved after death:—effuſions happen frequently in the brain, gangrene in the coats of the alimentary canal.

The above is a ſummary of the ravages of the endemic fever of the Weſt Indies, as it terminates life ſpeedily by ſudden relapſe, or conſumes it gradual-

ly by tedious obſtruction, abſceſs and ulceration of the viſcera. It is a fact worthy of remark, and well deſerving attention, that of all the Europeans who fall victims to the diſeaſes of tropical climates, two-thirds, under ordinary circumſtances, yield to the effects rather than to the direct influence of the acute malady; that is, to obſtruction or changed organization of one or other of the viſcera, terminating in abſceſs; or to changed ſtructure of ſome part of the alimentary canal, terminating in ulceration, known by the name of chronic dyſentery. A few pages will be allotted to the conſideration of theſe different accidents, too often proceeding from neglects, or indeciſion in the commencement of the diſeaſe.

SECT. II.

Relapſe in Febrile Form.

Diseases of the febrile form ſhow a diſpoſition to recur at certain periods, in all countries; in tropical countries, theſe recurrences are frequent, and often ſerious in their conſequences. The periods moſt remarkable for ſuch recurrence are the ſeptenary, more particularly the fourteenth day, ſometimes the ſeventh or eighth, the twentieth or twenty-firſt. But beſides this, certain aſpects of the moon have a ſingular connection with the return of fevers. In the ſecond and in the laſt quarters, the attacks of fever at Savannah la Mar in Jamaica, in the years

1775, 1776, and 1777, appeared to exceed in an extraordinary proportion the attacks of the other periods; but the greater number of theſe attacks were confined to the four days preceding the new or full. This was determined at Savannah la Mar by an evidence little liable to error. The ſubject has not been much attended to in St. Domingo; and the connexion alluded to, it muſt be confeſſed, was by no means obvious among Britiſh ſoldiers. In Jamaica it appeared more remarkable among the ſoldiers of a company of the 60th regiment, who were ſeaſoned men, and ſeldom expoſed to ſtrong cauſes of diſeaſe, than among the inhabitants of the town or country, whoſe habits and manners of life were leſs regular. It was obſerved in Jamaica, that where cauſes of fever were ſtrong, or where diſeaſe was in ſome meaſure epidemic, the connexion was leſs clearly marked. In this manner, the law, perhaps, actually prevailed leſs certainly in St. Domingo than in Jamaica; for the cauſes of diſeaſe were ſtrong in that iſland, and the acceſſory cauſes among the ſoldiers numerous. But independent of this, the connection ſeems in reality to be leſs powerful in ſome diſtricts within the tropics than in others. It is uncommonly ſtrong on the coaſts of Guiana;—at Demarara the inhabitants calculate the relapſes of fever by the almanack,—and they ſeldom err. This fact is furniſhed by Dr. Pinckard, phyſician on the ſtaff, —a man acute in obſerving, and faithful in reporting what he obſerves.

It is neceſſary, in delivering rules for the preven-

tion of relapſe, to have regard to the ſtate in which the diſeaſe has left the patient; for if fever has ceaſed completely, without leaving traces of diſeaſed viſcera, the rules are few and ſimple;—they conſiſt in forbearing rather than in acting. Among the various forbearances, neceſſary in a ſtate of convaleſcence, abſtinence from wine and animal food conſtitutes a principal hinge. The maxim of recruiting ſtrength after diſeaſe, by good living, is deeply ingrafted in the mind of an Engliſhman; and rules of regimen, however eſſential to enſure recovery, are executed with difficulty among Britiſh ſoldiers. It is thus that the French, with few other aids than abſtinence, recover more perfectly, though in appearance leſs rapidly than the Engliſh;—and when recovered they are more completely aſſimilated to climate. The rule of regular allowances of wine, in a moſt injudicious manner, introduced into Britiſh hoſpitals, is productive of much miſchief. It occaſions an indiſcriminate uſe of an article hurtful in twenty caſes, where it is uſeful in one; while withholding, when improper, what a ſoldier deems a right, as a bounty of government, occaſions murmurs, diſcontent and importunities, which medical men have not always the fortitude to reſiſt. Abſtinence, is thus a principal part in fortunate recovery, and it demands a ſcrupulous attention; but there are other matters which contribute to the ſame end, and which cannot be neglected with ſafety. Among theſe, regularity in the functions of the alimentary canal is of much importance; coſtiveneſs

and its oppoſite are equally to be guarded againſt ;—rhubarb, with additions according to circumſtances, forms the baſis of a remedy calculated to anſwer both purpoſes. Exerciſe in pure air is neceſſary to preſerve health ; it is neceſſary to a certain extent to reſtore and confirm ſtrength ; after exerciſe, waſhing or bathing in cold water, and after waſhing, frictions are of benefit ; change of air and change of objects ; amuſements which divert and intereſt the mind deſerve particular regard :—on this ground it is found ſerviceable to move convaleſcents to advanced poſts, where they readily forget that they are valetudinary.—Together with the above attentions, it will be proper to adminiſter an increaſed quantity of bark, previous to the periods at which relapſe is known moſt uſually to occur.

The means mentioned above, will generally be found ſufficient to guard againſt relapſe, where the diſeaſe has terminated completely in health ; but it happens frequently, particularly where the endemic poſſeſſes a character of malignity, that the courſe and form of the fever are ſuſpended, without criſis, or recovery of healthy action ; in which caſe, much diſcernment and exertion are required to prevent ſuddenly fatal effects. Under the circumſtances of a ſuſpenſion of open morbid action; a ſtate of deceitful tranquillity preſents itſelf, which demands to be carefully watched ; the danger is ſtrongly painted in the countenance, but the deſcription of it is not eaſily conveyed in words ; the aſpect is clouded and grim, the eye is embarraſſed, and the ſenſations are

uncomfortable, without reference to ſpecific cauſe. In this ſuſpicious ſtate of things, a paroxyſm ſuddenly ſupervenes, extinguiſhing life ſpeedily, or ſeverely deranging an important organ :—the uſual terminations are coma or oppreſſion of the brain, ſuffocation of the lungs, gangrene of membranes, particularly of the membrane which lines the cavity of the abdomen, and covers the inteſtinal canal.

This temporary ſuſpenſion of the action of the febrile cauſe, called imperfect criſis, offers a curious phenomenon in the hiſtory of fevers. The action of the cauſe ſeems to be interrupted in its ordinary train of proceeding ; the force ſeems to accumulate during the ſuſpenſion, and at a given point, an exploſion takes place, carrying deſtruction to organs, from the general or accidental circumſtances of the principle of life, leaſt diſpoſed to reſiſt injury. In diſeaſes of type, the relapſe or renewal of morbid action is ſudden and generally violent ; in continued fever, effects are ſimilar, but leſs rapid.

The mode of operation of the general cauſe, which produces the phenomena of fever, ſeems to receive ſome illuſtration from the circumſtances attending the apparent interruption of morbid action. It is preſumed that the original cauſe of fever is an irritating power ; for the firſt action is evidently an irritation, generally exerted upon the moving fibre of the vaſcular ſyſtem ; the regular alternate action of contraction and relaxation is thus diſturbed or ſuſpended ; and the effect, being an interruption of the vital energies, the operation appears to be ſeda-

tive: this interrupted action, further appears, with different degrees of effect, in the different portions of the system at the same time; and when removed, by natural or artificial means from one place, disturbance arises suddenly in another: Hence, when this cause of irritation acts strongly, so as to produce a complete suspension of the natural alternate contraction and relaxation of the fibre, in a certain series of vessels, effusion is the consequence,—followed by compression and death; if on a different series of vessels, gangrene ensues more directly; if the suspension be not complete, if it do not comprehend the entire series of vessels, or if it be partially removed, inflammation is perhaps the first step of the operation. This action seems moreover to be chiefly exerted on the extreme vessels, at the points where they are formed to become a series of secreting or absorbing organs: a function is thus suspended or destroyed,—and the body dies in parts.

If a patient be observed with a lowering aspect,—the course of disease interrupted without signs of returning health, the utmost vigilance is required to guard against the accidents likely to ensue. It is a principal object in this case to fortify or guard the brain, lungs and important organs against injury or destruction, at the time of the expected explosion; and it appears that local weaknesses, produced artificially upon external or less important parts, are not without effect in answering this end. It is in this manner perhaps, that large blisters to the neck and back give promise of security to the head and chest.

Where blifters are applied with this view, it is requifite that the difcharge from them be kept up, till all fymptoms of danger are paft. Warm bathing, fomentations to the extremities, long continued, wafhing with cold water, or cold bathing, frictions, exercife in the open air, with amufements to the mind, promife benefit:—wine and brandy, even to intoxication, have appeared on fome occafions to avert impending deftruction; or to produce falutary motions in the fyftem, when under the above perilous circumftances.

SECT. III.

Difeafed Vifcera.

It is a well known obfervation, that difeafes of the febrile form have a marked tendency to abate or to ceafe at certain periods; it is further known, that thefe difeafes either ceafe in perfect health, with the recovery of all the functions; or that impediment and derangement remaining in an important organ, the foundations of local maladies are laid, which prove tedious in cure, or in the event terminate exiftence: thefe local affections are various as the vifcera of the human body; but they are found more frequently among the vifcera contained in the cavity of the abdomen, than in other parts.

Fever, even in its more pure and genuine form, is feldom known to act on every organ, or on every part of the body with equal force. From circumftances, peculiar to the conftitution of the patient,

to the qualities of the climate, to the ſeaſon of the year or local ſituation, variouſly modifying the cauſe or action of the cauſe, one part of the frame ſuffers in a greater degree than others. At the time of criſis, or expiration of the febrile period, ſuch parts as have been more deranged than others in the preceding courſe of the diſeaſe, recover their energies ſlowly and imperfectly. Fever, it is obſerved, has periods of termination; in febrile habits there are alſo periods of relapſe; and it often happens, that relapſe occurs before the parts, in a more particular manner deranged by the preceding diſeaſe, have recovered the natural ſtate of health and activity: Hence theſe deranged or weakened parts having a diminiſhed power of reſiſting injury, ſuffer, according to a known law of an animal body, in a more aggravated degree than others. The cauſe of fever is further of a given power; and when its operation becomes declared, it is generally obſerved, that, if any one part or organ ſuffers in an undue degree, the functions of the others are leſs diſturbed, than if ſuch irregular or local action had not taken place: Whence it happens, that fever of relapſe, in a habit where certain parts or organs of the body have loſt their original energy, ſeldom runs high;—the general force of the diſeaſe diminiſhes every ſucceeding paroxyſm, the derangement of the weakened part increaſes, and the febrile form is at laſt loſt in local diſeaſe. This hiſtory occurs daily in endemic as well as in contagious fever:—diſtinct and regular fever ſubſides, or ceaſes; obſtruction and abſceſs are

formed in the liver or other organ : This is frequent; but changed ſtructure, with ulceration in the alimentary canal, giving the appearance of dyſentery, is ſtill a more common effect :—further, theſe local affections being cured, or ſuppreſſed, fever or general diſeaſe not unfrequently reſumes its courſe.

Diſeaſes of the viſcera require to be conſidered in hiſtory and in cure, as of two ſtages, or of two degrees of progreſs, viz. a ſtage of obſtruction, with impaired function ; a ſtage of inflammation and ſuppuration, with functions aboliſhed. The original foundations of viſceral diſeaſe ſeem, for the moſt part, to conſiſt in diſtenſion, or in certain degrees of effuſion, ariſing during the continuance of active fever. Congeſtions and thickening of parts, tending to diminiſh or obſtruct the capacity of veſſels, are natural conſequences of effuſion. By this obſtructed or diminiſhed capacity of veſſels, a change in ſtructure is effected, ſo that the functions and offices of parts are impaired to a certain extent. Such obſtructions or changed ſtructure of organs are often in a manner ſtationary, the actions of life going on for a length of time, with different degrees of impediment; at other times, they proceed rapidly to other gradations,—to inflammation, ſuppuration and eroſion.

The viſcera of the abdomen are the more common ſubjects of the changed forms of fevers ; and of theſe, the liver and alimentary canal are the principal : the ſpleen is frequently diſeaſed, but it undergoes great changes without occaſioning much

alteration in the apparent ſtate of health. It happens ordinarily in diſeaſes of the abdominal viſcera, reſulting from fever, that one part ſuffers more than others; but from continuity of coverings, and ſympathy of offices, the effects are widely extended. It is an eſſential object to examine minutely, and to learn preciſely the ſeat of the diſeaſe, the ſtage, progreſs and the extent of the connexions; but it is difficult to give minute inſtruction on this head: the materials, in poſſeſſion of the author, are neither ſufficiently copious nor exact, to furniſh a detailed hiſtory of the diſeaſes of the abdominal viſcera; nor does the deſign of the preſent work admit of it. The ravages of the diſeaſe in the principal organs have been briefly noticed; from theſe ſome opinion may be formed of the mode by which death is occaſioned. This point being fixed, the hiſtory of the firſt ſtages, the complications and the preciſe condition of things, muſt be learned, from accurate obſervation in the living ſubject.

The firſt derangements of an organ of importance to the functions of health and continuance of life, demand attention. Congeſtions and obſtructions degenerate, by neglect or bad management, into inflammations, ſuppurations and eroſion. From ſuppuration and eroſion recovery is uncertain; from congeſtion or obſtruction leſs is to be feared, if proper plans of cure be timeouſly adopted, and proſecuted with perſeverance and judgment. In diſeaſes of the viſcera, even in a ſtate of congeſtion or ob-

ſtruction, it is evident that change of ſtructure has taken place :—to alter this changed ſtructure, or to remove parts diſeaſed, is a previous ſtep to the formation of ſuch as are ſound. It is proved in experience that mercury, from what mode of operation is not the queſtion to be determined at preſent, poſſeſſes, more generally and more permanently than any other known remedy, the power of altering the condition of action in the extreme veſſels of the circulating ſyſtem. In conſequence of ſuch change of action, the derangements in ſecreting organs are often removed; whence mercury becomes a general and important inſtrument in the hands of a phyſician, in the early ſtages of the diſeaſe under view. But though mercury be a remedy of ſignal benefit under the above conditions, it requires a very cautious and circumſpect management. It requires to be ſlowly and gradually introduced into the ſyſtem; for the foundations of change and renewal of ſtructure depend upon a gradual, uniform and extenſive action upon diſeaſed parts; action violent, irregular and partial deranges general health, but does not ordinarily affect the ſeat of the diſeaſe.

If matters have been well conducted, ſo that the diſeaſed parts are changed, removed or abſorbed in conſequence of a new action excited in the extreme veſſels of the organ, the next operation,—the repair of loſt parts, depends upon the proceſſes of nutrition. Diet under this head demands conſideration. The doctrine of repairing ſtrength and loſs of ſubſtance, by rich diet and a portion of good liquor,

here preſents itſelf with great triumph; but, in the opinion of the author, rich diet is directly contrary to the end propoſed. The buſineſs of cure in the above derangements depends eſſentially upon activity of abſorption; and a very ſmall knowledge of the laws of the animal economy may ſerve to inform us, that this operation is neceſſarily impeded, and diſturbed by the uſe of wine and groſſer aliments. But beſides the inconvenience of full living, in obſtructions in remote parts of the body, the bad effects are immediate and direct, where the diſeaſe is ſeated in the alimentary canal, or in the meſentery and meſocolon intimately connected with it: Whey, rice, barley, ſago and things of ſimilar quality, with juices of balſamic herbs, compoſe the only allowable nutriment. Mercury, as has been obſerved, furniſhes the medicine; milk and vegetables afford the diet. Other means, as frequent waſhing with cold water, frictions local or general, chalybeates, gentle exerciſes in pure air, on horſeback or in carriages, may be ſo managed as to aſſiſt the main view in a very material manner, more particularly to eſtabliſh and confirm the advantages gained. For it is a truth, never to depart from view, that whatever is begun by medicine, requires to be ſupported by a ſtrict obſervance of regimen, and by habits of exerciſe in pure air,—exerciſe in pure air being that alone, which is capable of imparting permanent tone and activity to the powers of life.

In the firſt ſtage of the diſeaſe, the proſpect of

ſucceſs, under good management, is a favourable one; in the ſecond, or when inflammation is in progreſs to ſuppuration, it is very doubtful. But it is ſtill a previous ſtep, to obtain preciſe information of the actual ſtate and condition of things. In the inflammatory or ſuppurating ſtate, evacuation by the lancet has ſeldom been tried in extent. Bleeding indeed may ſometimes be proper, as preparatory to other means; but the inflammations, from previous and tedious congeſtions, lie too much without the ordinary channels of circulation, to be materially affected by general evacuation. Mercury, the chief remedy in the early ſtage or period of congeſtion, is of very doubtful effect here. Bliſters applied as near as poſſible to the ſeat of affection, often afford temporary relief,—converted into iſſues they contribute materially to promote a cure. Cicuta, judiciouſly and boldly managed, promiſes advantages; but the trials made of this remedy in St. Domingo have been too few, or too little exact, to enable the author to ſpeak poſitively. The proſpect of cure is certainly a dark one, in caſes of abſceſs and eroſion; yet great ravages have ſometimes been repaired in proceſs of time, by management and ſtrict attention to regimen.—A diet, entirely milk and vegetable, geſtation, or ſuch gentle exerciſes in pure air, as the enfeebled frame can bear without immediate injury, are chiefly to be relied upon.

SECT. IV.

Ulceration of the Inteſtines, or Dyſentery.

CHANGED ſtructure, inflammation, eroſion or ulceration of the inner ſurface of the alimentary canal, accompanied with a changed condition of the cuſtomary evacuations, both in time and quality, is a common conſequence of contagious fever, and, in a ſtill more remarkable manner, a conſequence of the endemic fever of the Weſt Indies. The alimentary canal, particularly among luxurious nations, is known to ſuffer more ſeverely than other parts, during the continuance of fever; and as it ſuffers ſo remarkably during diſeaſe, its functions are ſeldom reſtored in proportion with thoſe of other parts, at the period when relapſe occurs. When fever occurs under this condition, the alimentary canal ſuffers conſpicuouſly,—purging in ſhort becomes a leading feature of the diſeaſe:—a period of criſis or abatement arrives, but ſome derangement of the bowels ſtill remains; at another interval, relapſe recurs; the febrile ſymptoms are faint, the dyſentric ſymptoms prevail, or in a manner abſorb the whole, giving an appearance of common flux.

The complaint under view may be conſidered as a conſequence, or a changed form of fever,—a termination of fever in local diſeaſe. The evacuations in the commencement are often large and watery,

ſlimy, ſometimes bloody; the gripings are ſevere, and the returns are often in ſome meaſure periodical, the properties of the fever not being as yet entirely loſt. Theſe appearances change gradually, the evacuations become more frequent, but leſs copious and effective; the mucus becomes darker coloured, and is often mixed with dark blood;—the diſeaſe in ſhort fixes more immediately upon the colon and rectum. In this caſe the veſſels of the coats of the inteſtines are diſtended, the ſecretions are altered, the mucus is increaſed in quantity, changed in quality, and often mixed with blood; the coats of the inteſtines become thickened and changed in ſtructure, the ſurface exhibiting a ſeries of diſtended blood veſſels, extending to the meſocolon and continuous membranes. Circumſcribed inflammations next take place, terminating in ſuppuration and eroſion: from theſe eroded ſurfaces, matter is diſcharged by ſtool; and ſometimes matter is abſorbed into the ſyſtem, irritating and inflaming the glands of the meſentery and meſocolon in an extraordinary manner. The appearances of the evacuations are various; ſometimes they chiefly conſiſt of mucus, changed in quality and mixed with blood; ſometimes they are thin, fetid and dark, like bloody or dirty water; ſometimes they are green or yellow; ſometimes white, as if real pus; ſometimes bloody ſanies or ichor; and in many caſes grumous fetid blood. Where there is a ſtrong gangrenous diſpoſition in the ſyſtem, the event is ſpeedily decided, but more frequently life

is ſlowly and gradually conſumed, under the moſt extreme degrees of emaciation.

The examination of the tract of the alimentary canal, in perſons who have died of chronic dyſentery, points out clearly, that little benefit is to be expected from general remedies:—local diſeaſe,—congeſtion and ulceration,—is the leading feature; local applications conſequently offer themſelves as the obvious remedy. Doctor Borland, ſurgeon to the forces in St. Domingo, has proſecuted this idea with much induſtry, and by means of local applications has conducted ſeveral apparently deſperate caſes to a fortunate iſſue. The applications chiefly employed are ſolutions of ſugar of lead, white vitriol, alum, and, on ſome occaſions, corroſive ſublimate; to which may be added, as circumſtances indicate, tincture of myrrh, bark, decoctions of camomile and of cicuta. The mode of managing theſe injections is the following: ten grains of ſugar of lead, ſometimes fifteen, diſſolved in three or four ounces of water, ſometimes with, ſometimes without opium, are thrown up four or five times a day, or oftener:—the quantity thrown up is ſmall, in order that it may be retained with more certainty, ſo as to remain for ſome time applied to the diſeaſed parts. Previous to this application it will often be neceſſary to waſh out the lower inteſtines, by a large glyſter of warm water. The relief from this application is uſually great; but it is almoſt unneceſſary to ſay, that it is only where the diſeaſe is ſeated in the rectum or colon that permanent bene-

fit is expected from it; and it may be obſerved further, that if the coats of the inteſtines be much diſeaſed or fundamentally changed in ſtructure, ſuch means may procure a reſpite, but cannot of themſelves effect a cure.

In this, as in every other diſeaſe, it is neceſſary to examine the actual ſtate of things minutely; for according to information on this head, the means of cure require to be modified.—In the commencement of the malady, or period, at which the fever begins to aſſume the dyſenteric form, it is often proper, where the gripings are ſevere, the abdomen tenſe, the pulſe ſmall, hard, and the ſkin dry, to take away ſome blood;—the quantity to be regulated by circumſtances. After this evacuation has been performed to ſufficient extent, a briſk, ſometimes a ſevere purging medicine,—rhubarb with calomel, even julap with calomel, or calomel followed by the bitter purging ſalts, ſerves, on many occaſions, to put matters in a proper train. The operation of a briſk purgative, by unloading and emptying the over diſtended veſſels of the inteſtines, gives an opportunity of afterwards exciting theſe veſſels to proper and healthy action, by a judicious management of tonic remedies. Among theſe tonics may be ranked white vitriol, alum, powder of anguſtura bark, powder of camomile flowers, ſemirouba, &c. But it muſt always be remembered, that where tonic or aſtringent remedies are employed in dyſentery or diarrhœa, the attentions muſt likewiſe be directed to the opening of the ſurface of the body, by ſudorifics,—among which

Dover's and James's powders hold the firſt rank. Warm fomentations to the abdomen, are ſometimes of benefit; waſhing, after every evacuation, with cold water is refreſhing, and even produces permanent good;—tonic applications, in glyſter, likewiſe have place in the preſent circumſtances.

If the complaint be advanced in progreſs, or arrived at a ſtate of eroſion, it becomes an eſſential object to aſcertain as near as poſſible, by examination of the ſtools and other circumſtances, the nature and extent of the internal ulcers. Where the teneſmus is diſtreſſing, and the pains ſevere, with ſenſations of heat and irritation, injections of ſugar of lead with opium, produce ſignal relief. There are caſes, where alum or white vitriol appear to have advantages; but it is not an eaſy matter to define them with preciſion. Where the diſcharges of mucus are abundant, without evident marks of extenſive ulceration, alum appears to be well adapted. In ichorous and ſanious diſcharges, ſolutions of corroſive ſublimate were employed with benefit:—tincture of myrrh, bark, even ſolutions of blue vitriol, might be uſeful in others:—fomentations, or glyſters of decoctions of camomile flowers or cicuta, deſerve trial.

Local applications, by glyſter, undoubtedly make an important addition to the cure of dyſentery or inteſtinal ulceration; but many other helps are required to eſtabliſh the recovery of health. Warm and cold bathing, employed alternately, are capable of producing a great deal of good; they alleviate pain, afford comfort, and facilitate the operation of

other remedies. Washing or bathing, for a length of time after the operation of stool, is perfectly safe, and has effects more extensively beneficial than is imagined. Negroes, reduced to the last stages of dysentery, often sit in a running stream, or in a tub of cold water for an hour together; they find benefit from it; it has been tried and has been found to afford similar benefit to Europeans, in untractable states of the disease. Such remedies are useful helps; but the mass of congestion and changed organization, which often takes place in the coats of the alimentary canal, in the mesentery and mesocolon, if, in reality, under the controul of medicine, can only perhaps be expected to yield to mercury, skilfully introduced into the system. But though local applications may amend, and even in some degree cure local ulcerations; and a judicious and persevering course of medicine remove the deeper foundations of disease, yet health can only be established, and confirmed by abstinence, and a scrupulous attention to regimen. Whey, rice, barley water, the juice of herbs and vegetables are alone admissible in diet. It is almost superfluous to say, that the irritations of rich and stimulating food are hurtful. It is obvious to common sense, and too often proved by experience, that wine and grosser aliments aggravate the disease by direct effect.

CHAPTER XIII.

Original local Modes of Action of the Cauſe of Fever.

THE diſeaſe, deſcribed in the preceding pages, manifeſts the operation of a febrile cauſe, in evident febrile form; a few words are now added to explain operations of the ſame cauſe, under different and more circumſcribed appearances. The frequent connexions of diarrhœa and dyſentery with fever, the changes and alternations, which theſe forms of diſeaſe commonly undergo, cannot well fail to ſuggeſt to a reflecting mind, that the original cauſe is one. This opinion has occurred to many writers; and the author was convinced of the truth of it, from his own obſervation, in the late American war; but the opinion of a ſimilar connexion, between fever and ſores on the legs, or eruptions on the ſkin, did not preſent itſelf till the preſent war, and was not proved to conviction till the year 1797. The exiſtence of the fact cannot now be doubted, and, by means of it, may perhaps be explained ſomething of importance in the chain of the operation of febrile cauſes. It ſeems thus, that this cauſe, whatever its nature may be, raiſes general and febrile commotion at one time; at another it attaches itſelf to parts, impedes their healthy action or deſtroys their functions. This opinion is well explained by the following fact. Five perſons, ſtrangers in the climate, ac-

companied the author to the hoſpital of the foreign troops, at Croix des Bouquêts in the month of November 1796. In leſs than three weeks, three of them were attacked with fever; they were bled largely and purged freely; the diſeaſe was cut ſhort at the time; but, no preventative means having been uſed, it recurred at the expiration of a fortnight in all; evacuations were again employed, but the diſeaſe was now only changed to intermittent,—mild indeed in form, and ſoon terminating;—another of the five was attacked in the abſence of the author,—treated feebly, and died on the fourth day. The fifth experienced diarrhœa; and the author was troubled for near ſix weeks, with a ſucceſſion of pimples or blotches on the legs, ſome of which inflamed conſiderably with great pain, and continued a fortnight before they ſhowed a diſpoſition to heal. In local derangements,—diarrhœa and ſore legs, ſeems to be exerted the operation of the cauſe of fever upon Africans, after arrival in the Weſt Indies: theſe rarely experience formal fever; but they rarely eſcape one or other of the above indiſpoſitions.

SECT. I.

Diarrhœa or Dyſentery.

This form of complaint, whether depending upon a cauſe of fever endemic or contagious, is often a forerunner of great ſickneſs; in other caſes, it appears in common ſeaſons in certain diſtricts of country,

and ſometimes it appears among ſubjects under certain accidental conditions of ſituation. When depending upon the cauſe of endemic fever, among ſtrangers, it appears moſt frequently in diſtricts where the endemic is ſtrong, in ſpring and the beginning of ſummer,—under ſhowers or moderate rains: Among ſeaſoned ſubjects or natives of the country, it is frequent in autumn or the beginning of winter: it is common in the hilly ſituations of tropical countries in the ſeaſons of rain; and ſeems there to be nearly allied with intermittent. When it depends upon the cauſe of contagious fever, it appears frequently in the field, while men lie upon wet ground or wet ſtraw, where they are diſtreſſed in ſpirit, confined and cramped in their views. But though the above conditions ſeem, for the moſt part, to modify the operation of the cauſe of fever to a dyſenteric form; yet this form ſometimes prevails epidemically, where ſuch cauſes do not obviouſly exiſt.

It is not neceſſary to enter, at preſent, into a detailed deſcription of this form of diſeaſe; but it is neceſſary that it be diſtinguiſhed, from the form mentioned before as a conſequence of fever, or a form of relapſe. This diſeaſe ſometimes begins in a mild manner, and advances gradually to a certain point; the evacuations are large, watery, ſometimes feculent, or bilious, with moderate gripings, and with little diminution in the appetite; ſometimes the gripings are ſevere, with ſtools frequent, ſmall and ineffective,—the appetite impaired,—

the thirſt increaſed,—the ſkin dry, or clammy and greaſy,—the bowels irritable to drinks or food, with faintneſs, failure of ſtrength and rapid loſs of fleſh; ſometimes the evacuations are mucous and bloody, with faintneſs, rapid ſinking of ſtrength and ſevere gripings;—ſometimes they are bloody and fetid, the patient melting down without pain, or without much appearance of fever.

This diſeaſe, mild or more violent at the attack, is not ordinarily dangerous, if judiciouſly treated in the commencement; but if allowed to go on without interruption, or if treated in an improper manner, foundations of derangements are ſoon laid, which deſtroy life with much certainty.——In regard to treatment, it is often adviſable to take away blood; and after bleeding, it is proper to purge briſkly, or rather ſeverely,—an emetic is often of benefit, followed by a ſtrong doſe of rhubarb and calomel, or julap and calomel, the bowels during the operation being well waſhed out by watery liquors; Dover's powder, or James's powder, with a certain proportion of laudanum, and the occaſional uſe of tonics, white vitriol, alum, anguſtura bark, colombo and powder of camomile will often complete a cure; but the alternate uſe of evacuants, ſudorifics and tonics is required at intervals, to prevent relapſe. Local congeſtion takes place in the preſent caſe to a certain extent; to remove this congeſtion, local evacuation is the direct and obvious remedy; after which, a ſtrong power, capable of exciting the weakened action of parts to uſual

energy, is neceſſary. This mode of cure is illuſtrated, by the example of ophthalmia: where the veſſels of the eye retain irritability, and ſome energy of action, copious bleeding alone often removes the complaint; but where the irritability is diminiſhed, or the parts have loſt their power, bleeding is not effectual, unleſs followed by a tonic and ſtimulating application.

In the article of diet, abſtinence from wine and animal food demands to be rigidly obſerved:—bouillon is allowable; but the chief part of diet ought to conſiſt of rice, barley or ſago rendered palatable by aromatics and ſpices;—it is in a ſtate of hunger, that the veſſels of the alimentary canal beſt recover their activity;—what fills and loads is therefore improper and hurtful; and it is difficult to ſay on what foundation, port wine is ſo ſtrongly recommended; a glaſs of ſpirits in gruel, ſeemed in general more acceptable. Beſides diet, exerciſes are of great conſequence in removing and preventing the return of diarrhœa: whether on foot or on horſeback, the exerciſe ought not to be intermitted till perſpiration has been excited, and ſupported for a certain time. Wearing of flannel will often be of benefit, in preventing the tendency to relapſe; waſhing, or bathing the abdomen and neighbouring parts in cold water, gives relief from teneſmus, gripings and uneaſy ſenſations: it is the greateſt luxury, which the art poſſeſſes, and not the leaſt beneficial remedy,—but its benefits are known only to a few, the generality of

men being perverſely bent againſt the employment of it.

SECT. II.

Cutaneous Eruption,—and Ulcers of the Legs.

ERUPTIONS on the ſkin, blotches, a ſpecies of itch, ſores and ulcers on the legs, ſtand, by a curious connexion, in the link of operation from a cauſe of fever. Diarrhœa is frequently a forerunner of fever, —endemic or contagious, ſometimes intermixed with it, or alternating; blotches, and ſores of the legs frequently precede diarrhœa, intermix with diarrhœa or fever, alternate, occupy certain ſituations of country, or appear principally under certain condition of ſubject. In the dry, rocky, and hilly diſtricts of country in tropical climates, or on mountains near the ſea, ſore legs are a general and perplexing malady with European ſoldiers; they are intimately connected with intermitting fevers and diarrhœa; in wet weather, or in the rainy ſeaſon, intermittents and diarrhœa are frequent; in dry weather, ſore legs are more common; ſore legs alſo appear frequently among claſſes of men, moved to a new climate, who ſeem little ſuſceptible of febrile irritation, from the application of a febrile cauſe. Such are Africans, and perſons who live temperately and ſoberly—(in common language poorly), or who have experienced frequent changes of climate, and, under theſe changes, led a life of activity. Blotches on the ſkin, and ſore legs frequently appear in crouded barracks, in ſhips or hoſpitals; they depend evidently upon a

cauſe of febrile contagion; but the preciſe ſtate or degree of contagion, which originates this form, is difficult to be marked: the appearance however uſually ſhows itſelf in an early ſtage of contagion,—in a contagion generated among a ſet of men, rather than imported from a concentrated ſource.

The preſent deſign does not admit of entering minutely into the hiſtory of ſore legs, as the ſubject has only been introduced to eſtabliſh its connexion in the chain of operation of febrile cauſes. Sore legs, more particularly in tropical climates, are uſually obſerved to originate in pimples or blotches, which diſcharge a fluid, ſometimes thin and acrid, ſometimes thick and yellow, or white like well conditioned matter. Theſe blotches ſometimes dry up, or heal very ſpeedily; but the healing is ſoon followed by others in different parts of the limbs; they thus break out and heal, and heal and break out in regular ſucceſſion; ſometimes inſtead of healing, a red circle ſpreads around, with ſharp and ſtinging pain. By care and good management, even theſe are frequently healed or prevented from degenerating; by neglect or improper treatment they ſpread rapidly, affect the membranes which cover the bones, and even affect the bones themſelves with caries. The diſcharges, from theſe rapidly degenerating ulcers, often conſiſt of a glairy, dark coloured jelly, ſometimes of a dark grumous fetid blood, the parts breaking down with an aſtoniſhing rapidity,—life, in ſuch caſes, is ſoon deſtroyed,—it is even ſeldom ſaved by removing the limb, without uncom-

mon attention, and found views in the management of diet.

The author enters into no detail of cure. Where the complaint has been of long ſtanding, and has become in a manner, ſtationary, ſuch local applications, as change the ſtate and condition of the parts, are neceſſary; but while this is done, what is due to the improvement of the general habit, and to ſecurity againſt accidents, likely to ariſe from the ſuppreſſion of local diſeaſe, muſt be carefully held in view. Among local applications, poultices of certain herbs and vegetables common in the Weſt Indies, of acid and aſtringent fruits, the applications of powders of roots and drugs, as rhubarb and bark, of eſcharotics, as burnt alum, red precipitate, blue vitriol, cauſtic alkali, &c, are frequently reſorted to, and generally with benefit to a certain extent. But it muſt be remembered, that whatever favourable changes be induced upon a diſeaſed ſurface, theſe changes muſt be cautiouſly regarded, till evidence appears, that the general health is ſecure:—healing, or improvement in the appearance of an ulcer is often followed by an attack of fever, and, for the moſt part, fever of the moſt dangerous and malignant kind. Full diet of animal food, with a large allowance of wine, is often preſcribed in the putrid, and rapidly ſpreading ulcers of the Weſt Indies. Animal food and wine, in the opinion of the author,—and the opinion is founded upon experience, may be conſidered as ſingularly hurtful. The ſuitable diet here conſiſts, or ought to conſiſt, entirely of vege-

table matters, cooling fruits and diluting drinks; beverage of cream of tartar, or good ſpruce beer, are recommended in preference to others. In way of medicine, briſk and even ſevere purging, with calomel and julap or rhubarb, is proper at certain intervals; bleeding, general or local, on many occaſions; waſhing with cold water; expoſure to cool and free air; and, as far as can be accompliſhed, a gentle degree of exerciſe or motion.—Doctor Borland, ſurgeon to the Forces, acting on this principle, has been ſingularly fortunate in his treatment of ulcers, ſore legs, and their conſequences, in diſtricts of St. Domingo, where great calamity has been ſuffered from thoſe afflictions, under different management.

CHAPTER XIV.

Prevention.

THE general prevention of diſeaſe depends little upon rules delivered by medical men, either in civil or military life; the curing of diſeaſe, as it were by anticipation, depends much upon the ſurgeon of a regiment;—to explain, in a few words, the principles, by which the conduct of thoſe intruſted with this important charge ought to be regulated, will not be a ſuperfluous undertaking.

The cauſe of fever, as is well known, is a matter, the intimate properties of which we have not yet

diſcovered, and which in all probability we never will diſcover; for they are not obvious to the ſenſes. But though the matter itſelf be imperceptible to our view, we often trace the effect of its operations; and we know, in many caſes, to appreciate the relative conditions of the body, which favour or retard its action. It is obſerved, that this cauſe does not ordinarily produce diſeaſe upon immediate application, or immediate reception into the animal ſyſtem, —a ſpace of time intervenes,—of different duration, indeed, according to circumſtances, but always of ſuch duration as to prove, that ſome unknown proceſs or modification takes place, before a diſeaſe of form appears. The conditions of the human body change and fluctuate conſtantly:—material alterations occur daily, and ſtill more remarkable alterations occur at regular, but more diſtant periods. Of theſe periods, the ſeptenary,—the ſeventh, the fourteenth and twenty-firſt days are principally diſtinguiſhed: hence it is obſerved, that certain aptitudes of colliſion, between the relative ſtate of the body and the ſtate of the morbid cauſe, are produced at theſe periods more readily than at others. In thoſe aptitudes, or movements of the frame correſponding with the action of the cauſe, conſiſts that form of things called diſeaſe;—what deſtroys the correſpondence, breaks the chain of operation; what prevents, or impedes the progreſs of theſe correſpondencies, from proceeding in the ordinary train, retards the expected appearance of the effect. That laws of this nature do prevail, is illuſtrated by

the conſideration of the difference of period, at which perſons, expoſed to the ſame cauſes, manifeſt the operation of theſe cauſes;—a difference, which ſeems to ariſe, at one time, from natural quality of conſtitution; at another from foreign and arbitrary accidents. Of theſe arbitrary cauſes, ſome appear to haſten, others to retard, perhaps to prevent altogether the colliſion of the morbid operation. It is thus obſerved, that if the cauſe of fever exiſts in the habit, but exiſts only in latent form, ſudden and deſultory exertions, reſt after fatigue, or indolence after activity, debauch after temperance, exceſs amidſt cuſtomary regularity; and a variety of other cauſes, which ſeem to produce effect by diſturbing the exiſting balances of the ſyſtem, call forth the operation of the latent cauſe. Theſe cauſes act, if it may be allowed to gueſs at the reaſons of things, by permitting an undue accumulation of the principle of irritability; or by ſuddenly touching a ſpring, which calls, to unnatural action, that irritability unduly accumulated. On the other hand, the operation of the cauſe of fever is retarded, perhaps warded off altogether, by a regular ſucceſſion of military enterpriſes, as by the exertions of an active campaign; by a ſeries of manly and animating exerciſes, carried to the point of impreſſing the actions of the ſyſtem; by ſervice during ſieges; and, in many caſes, by impreſſions during captivity; in ſhort, by cauſes which maintain a ſtrong hold on the mind and body, and thus reſiſt the derangements of other cauſes. An accumulation of the

principle of irritability ſeems to reſult from ſumptuous and full living, thereby diſpoſing to fever; the oppoſite is the effect of abſtinence, and the conſequences correſpond. Climate alſo has its effects, as have modes of clothing; and perhaps, all the cauſes which diſturb the healthy operations of animal life, or, which ſtrengthen and confirm theſe operations, are reducible to very ſimple principles of action.

In the way of prevention, little depends upon the ſurgeon of a regiment in Europe; for few ſurgeons preſume to interfere in the diſcipline and economy of troops. It is however an important part of medical duty, to attend minutely to the hiſtory and conditions of recruits; not only to aſcertain, that they do not actually ſuffer from diſeaſe; but that they have not had connexion with ſources of contagion. Convaleſcent men from hoſpitals demand a ſimilar attention; theſe ought perhaps in no inſtance, where contagious diſeaſe exiſts in the hoſpitals of an army, be allowed to mix with their comrades, till after a purification of three weeks. Neglects on this head, have often produced deſolating miſchiefs in armies. Eruptions on the ſkin, blotches, or a ſpecies of itch, ſores on the legs, and ſlighter forms of diarrhœa, require particular notice: under theſe aſpects, contagion has often crept into a corps; and even, under ſuch aſpect, it has often diffuſed itſelf widely among troops.

The ſphere of a ſurgeon's authority extends wider, when on ſervice in the Weſt Indies; but ſtill

the higher arrangements, for the preſervation of health, do not depend upon the controul of medical men. Such means however as are in their power, ought to be diligently and promptly employed; for the climate of the Weſt Indies does not allow of temporizing. It will, for the moſt part, be proper to take away ſome blood from an European, immediately upon his arrival in a tropical climate; and it is ſtill more proper to purge briſkly, perhaps ſeverely once a fortnight or oftener. Calomel and julap, or calomel with cathartic extract, ſeem to be better than the gentle laxatives, which merely open the body. It is obſerved that perſons ſubject to diarrhœa, from ſlight cauſes, generally eſcape ſerious attacks of fever. This ſeems to point out the propriety of opening the body, freely by purgatives; as the knowledge of the fact, that ulcers of the legs and fever do not often exiſt in the ſame ſubject, ſeems to indicate, that to open iſſues, might be a means of preſerving health; but this perhaps is a trial that cannot be well made in an army of ſoldiers. It is thus a general and a proper rule, to bleed an European on his arrival in the Weſt Indies, and to purge him ſeverely, at leaſt once a fortnight, for the firſt ſix months; but on other occaſions, when perſons have committed exceſs, or undergone extraordinary exertion, the ſame means are eſſentially neceſſary; they are moreover in a manner indiſpenſable, when after military ſervice in the field, of the continuance of a few days or of months, the ſoldiers are brought to a ſtate of reſt. Sickneſs is then an almoſt

never failing conſequence; unleſs prevented by copious evacuations,—bleeding, purging and abſtinence.

CHAPTER XV.

Convaleſcence.

CONVALESCENCE requires great aids from the military officer; it alſo demands the conſtant attention of the ſurgeon: it is uſually ſlow,—or it is uncertain in contagious fevers in Europe, equally as in endemic fevers in the Weſt Indies. The uſual periods of relapſe are known, and means of prevention ought of courſe to be uſed previous to theſe periods. Bark is chiefly truſted to; but in order to be effectual, bark muſt be given in large quantity, and given at diſtant intervals;—the daily uſe of it is leſs proper, for it then makes leſs impreſſion. The bowels require attention: tincture of rhubarb and aloes is a good form of purgative; others, with the addition of warm aromatic tinctures may ſometimes be preferable. The management of diet is a moſt eſſential conſideration:—the food ought to be light and digeſtible, ſavoury but not rich;—the appetite ought never to be ſatiated, even with the moſt innocent aliment: one glaſs of Madeira wine, in the twenty-four hours, is ordinarily as much as can be uſeful to a convaleſcent;—and here it may be remarked, that the conſumption of wine in hoſpitals is not ſimply

prodigal;—it has been deſtructive to an incalculable extent. Exerciſe is allowed by general conſent to be uſeful in the recovery of health; but many will probably object to the practice of returning men to duty, in the early period of convaleſcence. The practice is notwithſtanding a good one. There are few people of experience who have not obſerved, that a convaleſcent gains more in one day, by the ſimple act of waſhing, making clean, and preparing for ſervice, than by ſwallowing bark and drinking Madeira, for three weeks in an hoſpital. It has been a cuſtom with the author, and he cannot help recommending it to others, to diſmiſs men from hoſpitals, as ſoon as there is evidence that the diſeaſe has completely ceaſed; unleſs where ſtrength is much impaired. It muſt be acknowledged, that men diſmiſſed under ſuch conditions relapſe not unfrequently; but the relapſes are commonly ſlighter than the original diſeaſe, and for the moſt part eaſily overcome; while the ſtrength, in ſuch caſes, ſuffers ſo little, that the ſubject is ordinarily fit for duty, as ſoon as actual diſeaſe is gone. Relapſe occurs when men are ſoon diſmiſſed; it occurs not leſs frequently perhaps, when the patient remains in hoſpital under the idea of gaining ſtrength; and it is then, for the moſt part, of a more ſerious kind. Under the one mode of management, a regiment loſes little duty from the ſoldier, and military habits are not forgotten; under the other, four or five months will frequently be the period of confinement, and the ſoldier will then return to duty, ſlothful and

enervated,—little better than a recruit. There are various other matters, which belong to the convaleſcence of troops, but which do not lie within the controul of a medical man: the powers of medical men in armies are limited, but there is culpability, when they neglect what they can command. It is in their power, as it is their duty, to examine twice a-day every man, who has been in an hoſpital under fever,—for a fortnight at leaſt after diſmiſſion;—for, as by this means, an impending relapſe will often be foreſeen, it may, in the ſame manner, be often prevented, by timely aſſiſtance.

PART II.

AN

EXPLANATION

OF THE

PRINCIPLES OF MILITARY DISCIPLINE, MILITARY ECONOMY; AND A SCHEME OF MEDICAL ARRANGEMENT FOR ARMIES.

ADVERTISEMENT.

It is very probable, ſome will be of opinion, that the following tract enters into a province, which does not altogether belong to the author. The chief view here is directed to improvement of the moral virtues of the man,—to infuſe a principle of heroiſm into the mind, as the ſureſt bond of good conduct in the face of an enemy. The idea may appear viſionary and enthuſiaſtic; but, if an experience of upwards of twenty years can enable an ordinary perſon to form an opinion; a man without virtue never yet proved, upon fair trial, a good ſoldier. Such a man, indeed, often commits ſlaughter on the day of route; but he is uſually the firſt to run in the hour of danger. But as the preſerving, and the reſtoring of loſt health, is the object and deſign of this work; and, as health, is intimately connected with the improvement of the active powers of body, and with the improvement of the heroic qualities of mind, the bounds of a medical ſubject, it is preſumed, are not tranſgreſſed in the following ſketch. General principles are inveſtigated; the grounds on which they ſtand are expoſed; but no opinion is recommended, ſo as to be acted upon, which does not carry with it truth,—even to demonſtration.

PART II.

PRINCIPLES OF MILITARY DISCIPLINE.

CHAPTER I.

An Explanation of the Principles of Military Diſcipline.

THE diſcipline of ſoldiers, to whom is intruſted the defence of the rights and liberties of nations, is an object of great importance; but it is an object, ordinarily neither well conceived in theory, nor diligently executed in practice. It is indeed an object of difficult attainment; for it involves a multitude of concerns, commanding an intimate acquaintance with the intellectual and active powers of man. Diſciplined troops are placed upon the pinnacle of human perfection;—they are ſuppoſed to poſſeſs minds virtuous and heroic, bodies vigorous and capable of enduring hardſhips and fatigue;—ſelected, arranged and formed, according to ſyſtematic rule, into an organized and conſiſtent whole,—into a machine animated with one ſoul, and moving with one body. The ſubject thus naturally divides itſelf into different branches; viz. into a choice of ſubjects; into an improvement of the active powers of the body individually; and into an arrangement of theſe originally heterogeneous materials, into a machine organized in its parts, and capable of acting in concert, ſo as to produce an united effect, in which no portion of the power is loſt, or irregularly applied.

This is the object of military discipline, the execution of it belongs to the military officer. The business of health is in the province of the physician. This however is an object little brilliant, and ostensibly of small consideration; though the hinge upon which the execution of the other essentially depends. To establish principles, according to which the health of soldiers may be preserved, and the powers of exertion improved, is the purpose of this tract:—military suggestions do not belong to it; and are not hazarded, unless when inseparably connected with the subject of pursuit,—the improvement of the health, virtue and vigour of the man.

The purpose of war is double,—Defence or Conquest; the character of its instruments, of course, is of different estimation. A soldier, who volunteers the defence of the rights and liberties of his country, necessarily possesses a spirit of virtue and independence, a generous love of mankind, and attachment to his native soil. The mind is here under a commanding impression,—an impression, that freedom is an unalienable inheritance,—received from fathers it must descend to sons, pure and unimpaired. The sentiment, cherished, swells to an enthusiasm of valour; and a soldier of this description is an object of the highest veneration in a nation: on the contrary, a soldier formed for the trade of war, whether by a King of Prussia, or the Republic of France, is an object of dread and aversion; the least criminal sentiment, that can be supposed to influence his conduct, is avarice,—the hope of plunder,—or the love of adventure.

Among nations, celebrated for judgment and ſpirit in defence of their country, the Spartans, Swiſs and Hollanders hold the firſt place. The Macedonians under Alexander, and the Romans, till riches and luxury corrupted their minds, and enfeebled their bodies, were conquerors in the ancient world. Ambition and a love of glory, ſeemed here to predominate over avarice. Of modern conqueſts and modern conquerors, avarice, or a ſpeculation on the chances of advantage, has been the leading motive; and as avarice is of all paſſions, which influence the actions of man, the moſt baſe and degrading, the military character has loſt much of the generous heroiſm of ancient times.

Philip, King of Macedon, as he was the firſt prince, of whom there is authentic record, who, can be conſidered as a ſyſtematic politician, ſo he was the firſt, who planned and executed a comprehenſive ſyſtem of military diſcipline. The ſemi-barbarous ſubjects of Philip, were qualified, by nature, for the buſineſs of war; their minds were eaſily impreſſed with the enthuſiaſm and glory of conqueſt; their bodies were powerful; and their tactic, from ſound principle and long practice, became ſo exact, that if ever ſoldiers could be deemed invincible, they were the aged ſoldiers of Alexander.

The Roman nation was not eminent for invention, but it was attentive to improvement in military tactic; and it incorporated, into its code of diſcipline, whatever appeared capable of advancing the art of war. The Roman was a nation of ſol-

diers by trade: ambition, or the glory of conqueſt was the motive which ſeems principally to have influenced its conduct,—a motive which operated, for a long ſeries of years, in a tenor uniformly progreſſive. But the Romans having overrun the world, and plundered the wealthy, became rich in the common language of mankind, poor in reality, as dependent; being rich, they became luxurious and ſenſual; being ſenſual, they became effeminate, enervated and cowardly; the acquiſitions of their anceſtors, were intruſted to the defence of mercenaries; the authority of the nation became contemptible, for the ancient virtue was ſupplanted by ſenſuality and vice. The hiſtory of the Romans gives a ſtriking picture of the cauſes of revolution in the moral world,—revolutions, which as neceſſarily follow a certain progreſs and combination of things, as the decay of a plant follows full growth and maturity. There is a point in human affairs beyond which proſperity cannot advance; and, it is not in the nature of things, that proſperity remain long ſtationary. Induſtry,—oftener rapine accumulates wealth; wealth begets ſenſuality; the powers of the animal, individually and collectively, are abſorbed in the gratifications of ſenſe; vigour of mind and body decays; the fabric of the man, and the ſyſtem of moral arrangement equally fall to pieces; the materials remain, but the form changes; a new train of action commences and proceeds in a progreſſive courſe, until the accumulation of ſimilar cauſes produces a ſimilar effect. It is thus that the

figurative expreſſion of the Scripture " riches make " unto themſelves wings and fly away," is founded upon accurate obſervation of events, and deep knowledge of the principles of things.

Ambition, and glory of conqueſt have been leading motives of action, with the generality of warriors; and as might be naturally ſuppoſed, the views of leaders of armies, have been generally directed to infuſe ſimilar ſentiments into the ſoldiery. Ambition and glory of conqueſt,—(vices in the eye of reaſon, yet as aiming at ſuperiority over other men), call forth the nobler qualities of the human character; and on this ground, ſoldiers have been uſually, not only the braveſt, but the beſt,—the moſt honourable, and often the moſt virtuous of the race. A ſoldier under this view poſſeſſes mind and ſentiment, —and commands reſpect; but a ſoldier, formed upon the model of the great King of Pruſſia, ſeems to be degraded to the loweſt point of human degradation—to animated matter, with ſimple locomotive power. The authority of the King of Pruſſia, and the ſucceſs of the Pruſſian arms have made ſtrong impreſſion on the mind of modern Europe, in the buſineſs of war, or rather, in the buſineſs of preparing men for war; but poſitive opinions appear, in this caſe, to have been too haſtily formed from relative conditions. The King of Pruſſia is allowed to have been a maſter in his profeſſion :—he poſſeſſed knowledge in arranging the order of a battle, ſuperior to thoſe who oppoſed him; perhaps ſuperior to any general of his time; but the aſſumption of the princi-

ple, which directed his views in the art of diſcipline, does not entitle him to the ſame praiſe; it is evidently erroneous. It goes to extinguiſh the active qualities of the human mind—the motives which lead men to excellence; it may repreſs vice, but it inſpires no ſentiment of virtue; nor does it encourage that bond of ſympathy, by which men are held together, in the hour of danger. A ſoldier, formed upon this principle, will kill and plunder, rather than be killed or plundered; or advance, while cauſes behind ſeem ſtronger than cauſes before; fear is the impulſe; and, while the principle of action is the ſame in two contending armies, the general, who eſtimates appearances, will, for the moſt part, know events, before trials are made. A line of Pruſſian ſoldiers, of great weight and ſolidity, from the bulk of body and the manner of arrangement, neceſſarily impoſes upon troops, acted upon by appearances; but, if the buſineſs come to be decided by actual force of arms; ardour of courage, energy of mind and activity of limbs—will not fail to overturn a heavy machine, the ſtrength of which conſiſts chiefly in the mechanical arrangement of its parts, and which, when deranged, poſſeſſes but a feeble power of rectifying itſelf.

The troops of the King of Pruſſia were troops of a commanding appearance—and their enemies were ordinarily of a deſcription to be operated upon by appearances. Had they been oppoſed to Swedes or Swiſs in the days of their glory, or to the Highlanders of Scotland, before they were taught to mea-

ſure their paces by the ſwinging of a pendulum, the merits of the Pruſſian tactic would have been brought to an experiment, which might have been allowed to determine its value. Indeed, the ſmall ſucceſs of the Pruſſian arms, on the Rhine, gives room to believe, that Frederick the Third, owed his victories more to his plan of battle, than to the improvement of his diſcipline; in ſupport of which opinion, his ſucceſſor found and acknowledged, that his regular battalions were unable to ſtand before the impetuous attacks, of the half formed ſoldiers of the French republic.

CHOICE OF SOLDIERS.

The poor, the paſtoral and ſemi-barbarous nations ſeem, at all periods, to have been the conquerors of the rich, the commercial, the manufacturing, the poliſhed and refined. With this fact in view, the rulers of nations ought to ſelect their ſoldiers, from among that part of the community, which moſt reſembles this deſcription. The peaſantry of a country, particularly the ſhepherds and the hunters, are expoſed, in their daily occupations, to viciſſitudes of weather, and familiar with the ſituations and hardſhips, which fall to the lot of ſoldiers in times of war; but further, the ſhepherd, hunter, and even the agriculturiſt, in countries where farming has not become a monopoly of the few, poſſeſs virtue of morals, ſentiments of religion, a reſpect for the honour of their nation, temperance in manner of living, and the foundations of good health. On the

contrary, manufacturers and artiſans, men little familiar with viciſſitudes of weather, unaccuſtomed to exertion, to hardſhip, to fatigue, ſeldom temperate or healthy, helpleſs and dependent on imaginary comforts, are ill calculated for the buſineſs of war; but if ill calculated on this ground, they are leſs eligible on account of moral qualities. It is not neceſſary, in this place, to inquire by what proceſs manual occupations cramp the faculties, and, as it were, lock up the reſources of the mind, neceſſary even to the common ſoldier;—the fact is certain, and it is alſo certain, that high ſentiments of religion, of honour, of love of country, of reſpect for good name and reputation among fellow-citizens, do not flouriſh among men who live by the labour of the day,—who carry about with themſelves the implements of their art—their means of ſubſiſtence, and who are not excluded from ſociety and employment by ſlighter blemiſhes of character. It is thus that artiſans, little fit for the purpoſes of war from defects of body, or from inexperience of a condition of things ſimilar to war, are perhaps hazardouſly intruſted as ſoldiers, to defend rights and liberties againſt invading powers, from the principle which predominates in their minds, and regulates their actions. The amount of hire is the object of the maſs of manufacturers, even of agricultural day-labourers; and, in attainment of this object, the means, as in the other concerns of mankind, are of inferior conſideration. The farmer, even the peaſant, who poſſeſſes a cottage of his own, acquires an attach-

ment to a fixture, which engages him to defence upon principle :—a labouring manufacturer is a man of no place,—or rather of every place ; he is, in a manner, an inſulated being, who can ſcarcely conſider himſelf, or who rarely is conſidered as a part of the community,—an inſtrument of luxury, or a drudge of toil.—The attachment of ſuch men to a community, of which they do not form a part, or even to a country, to which they owe little but their birth, cannot, in the nature of things, be ſuppoſed to be ſtrong: they do not appear to be ſafe materials in a ſtate, at any time ; in times of threatening commotions, a reaſoning animal could ſcarcely expect, that they ſhould be intruſted with the uſe of arms, for the defence of national independence. It is preſumed that ſtateſmen ſee things in clearer light, and extend their views farther than ordinary men ; but if permanence be more deſirable than a brilliant but tranſient ſplendour, rulers would do well to organize the body politic of a nation, upon ſuch foundations, that every perfect part, that is every man who marries and begets children, be a conſtituent in the fabric : thus from the prince to the cottager, the machine would be animated and alive ; while every member, being equally intereſted in maintaining the exiſting ſtate of things, the movement would be regular, and duration would be protracted to a diſtant period : under monopolies and excluſions, the natural order of things is diſturbed :—undue accumulations take place in ſome parts,—deprivation in others ; the circulation, irritated in one or-

gan, ſtagnates in another; or is temporarily ſtimulated to quicker motion, by a ſucceſſion of expedients. One law ſeems to influence man individually, and his various aſſociations. The parts, irritated by the acceſſion of matters, which do not properly belong to them ſwell out beyond their capacity, and, by a neceſſary conſequence, burſt, or ſubſide, with loſs of energies. This happens in the natural body; it happens daily in the body politic,—in the inferior arrangements of ſociety; and it has uniformly happened to nations at more diſtant periods, from a more general operation of the ſame cauſes.

The virtue of the mind and the health of the body, in the opinion of the author, are the qualities to be firſt and eſſentially regarded, in the choice of a ſoldier: the activity of the powers of the body, he conſiders as of great importance; but the exterior figure of the man, valued in the preſent day higher than any other attribute, he is diſpoſed to rank in a very inferior place. In this particular, the opinion of military men is in direct contradiction to their experience. A man of ſix feet is more valued, on account of his ſize only, than a man of five feet eight; yet there is not an officer of ſervice, who does not know, that grenadiers, or men of bulky bodies, are the firſt to fail on a march; and medical men know that they die in hoſpitals, in a greater proportion than others. The King of Pruſſia, or rather the father of the great King of Pruſſia, ſeems to have been the firſt in Europe, who ſelected his

ſoldiers by the bulk of the carcaſs, and who proſecuted the idea ſyſtematically. If war be converted into a buſineſs of appearances, generals having mutually predetermined to advance or retreat, on a demonſtration of lines or columns of troops, of a certain ſolidity and extent in certain poſitions, fighting battles for paſtime, as they play a game at cheſs, the rule may be good; but the ſoldiers of a nation, which knows nothing of this trade of war, may be choſen by a better mark;—by active and vigorous limbs, by a firm and determined aſpect of countenance. The middle ſized men, where matters come to be decided by exertion, are uniformly the beſt; and there is little doubt, but that any given number of ordinary light infantry, matched againſt a like number of grenadiers, though unable perhaps to withſtand the weighty ſhock of the bayonet, would haraſs and annoy them by their ſuperior activity, in ſuch a manner as to demoliſh them in the end. The bulk of carcaſs has an impoſing appearance, upon minds prepoſſeſſed with fear; but it is of no actual advantage againſt fire-arms; while fear can have no operation upon a man, who enters the army from a generous motive, and who is formed to the buſineſs of his profeſſion, upon a ſound principle of diſcipline.

MEANS OF IMPROVING THE MORAL QUALITIES OF A SOLDIER, AND OF INSPIRING THE MIND WITH SENTIMENTS OF HONOUR AND HEROISM.

It is only in modern times, that attention to the

mind of a ſoldier has loſt its place, in the ſyſtem of military diſcipline. The King of Pruſſia, who appears only to have regarded the exterior of the man, commands opinions on this ſubject, with an overbearing authority. No queſtion is now made reſpecting the virtue, the morals or religion of a ſoldier. In ſoldiers recruited from jails, workhouſes, or from the corrupted materials of manufacturing towns, the habits of vice are thought to be too deeply rooted to admit of removal, and it is ſeldom that an attempt is made. To endeavour to inſpire with ſentiments of honour, religion and virtue, the heterogeneous maſs of men, enrolled on the liſt of armies in times of war, will be eſteemed ridiculous; it certainly will be difficult, but it is not impoſſible. The mind of man, even abſorbed in vice, is capable of being rouſed by ſtrong ſtimulation, and when rouſed, of being directed to a laudable purſuit. The mind in reality is eaſily impreſſed; ſix months, employed in inſpiring a paſſion of heroiſm, and in directing operations under that paſſion, will produce a more ſteady train of action in the day of battle, than could be accompliſhed, by drilling or operating externally upon the motions of the limbs, in a ſpace of ſix years;—and with this advantage, that actions proceeding from the internal impulſe of mind, will be full and effective; conſtrained actions, learned under the fear of the rod, can never be complete and vigorous; and they neceſſarily become irregular and incorrect, when the cauſe which produced them is withdrawn. It is

therefore the firſt ſtep in diſcipline, that the relaxed and diſſolute recruit be formed to act, from the impulſe of a virtuous mind; and there is abundant experience to prove, that the object, though difficult, is not without the reach of attainment.

In the firſt place, there is nothing perhaps which will more effectually ſtimulate the mind of ſoldiers to acts of heroiſm, or more certainly confirm them in habits of virtue and good conduct, than an intimate bond of union with their comrades, from early acquaintance or relationſhip, ſtrengthened by a knowledge and reſpect for the characters of their officers, in their native abodes. On this principle, corps formed in counties or diſtricts, officered by men of character belonging to the diſtrict, and on no account admitting of mixture, give promiſe of great advantage to military ſervice. Men under ſuch conditions will be cautious of committing offences, which degrade them in the eyes of the comrades of their early days; they will even be emulous to undertake acts of enterpriſe, the fame of which may travel to the place of their birth. It ſeems to be in ſome manner on this ground, that the 42d regiment firſt gained, and that it continues to maintain a diſtinguiſhed reputation in the field, and a never failing teſtimony of good conduct in civil life. The late 71ſt regiment, formed of ſimilar materials with the 42d, and acting on a ſimilar principle, performed an act of heroiſm at Stono-Ferry, during the American war, which is not eclipſed by the conduct of the three hundred Spartans, who fought at the Straits of

Thermopylæ. A party of fifty-ſix men and five officers, was ordered out to reconnoitre the enemy, ſuppoſed to be advancing in great force; it fell in with a column of more than two thouſand, attacked it, and checked its progreſs: the officers fell, the non-commiſſioned officers fell, and ſeven men only remained unwounded. The officer commanding, at the time of receiving his wound, deſired the few who remained to retire to a redoubt in the rear; but they peremptorily refuſed to leave the ground on which their officers and comrades lay; and they actually did not leave it, till the arrival of a reinforcement determined the enemy to retreat. This fact proves clearly the advantages of a connexion of friendſhip and reſpect, ſubſiſting between officers and men,—a habit, which can not be ſo well ſecured by any other means, as by the companionſhip and acquaintance of early youth. This will, in ſome meaſure, be enſured by a proper execution of the plan of regiments of counties, a plan extremely practicable, and chargeable with no inconveniencies, but the preſumption that it might give riſe to jealouſies and quarrels;—it, with more probability, will only produce a contention to excel in the field of battle. Officers and ſoldiers would, by this means, become parts of the ſame machine; animated with one ſoul, they would move with one body, and their movements would be from the internal impulſe of a heroic mind. The county, which ſent them forth, would participate in their honour, would receive thoſe who offend, for puniſhment in a work-houſe, (for the

man who deſerves corporal puniſhment, muſt be conſidered as incapable of bearing arms), and provide an aſylum of honour and ſecurity, for thoſe who have deſerved well. Officers and ſoldiers, companions in arms, mutually eſteeming and eſteemed, —not dreading or deſpiſing each other, would ſtand on the pinnacle of human perfection, would be ſoldiers in reality, and the deareſt treaſure of a nation.

Man is a reaſoning animal; but the actions of man are not the reſult of reaſon. A paſſion, a ſentiment or inſtinct originates human actions; and it is the buſineſs of education or diſcipline, to plant and cheriſh ſuch as are honourable and good. An idea of honour and generoſity calls a ſoldier to the field; and the culture of this, as a ruling paſſion, is the principal object of military concern. Muſic has in all ages produced wonderful effects upon the minds of men; but the effects of muſic are much regulated by aſſociations formed in early life. A Highlander of Scotland feels an enthuſiaſm of valour in the martial muſic of his anceſtors; the little diſtracting ſenſibilities and cares of ſelf, are abſorbed in the warlike ſound of the bagpipe; the mind is rivetted to its object, and Highlanders, under ſuch impreſſion, are perhaps not to be reſiſted by any thing in human form. Moſt nations, or claſſes of men have more or leſs of a diſtinct national muſic, capable of ſeizing the ſympathies of the mind, and of fixing the views upon one object. This however is a ſimple melody, which expreſſes a ſentiment, and

impreſſes a paſſion. It is rarely found in the laboured compoſitions of learned men; and little impreſſion appears to be made upon the mind of a ſoldier by the complex harmony of parts, which may pleaſe the ear of judges, but which conveys no ſentiment to the heart of an ordinary man. The muſic of armies, if it labours more to diſplay the ſkill, of the maſter, than to create and cheriſh martial ſentiments in the minds of the ſoldiery, fails of its object: but, if formed on a good plan, and properly directed, it is a moſt powerful inſtrument in the hands of a general, to rouſe men to deeds of glory. Its expreſſions however muſt be ſimple, congenial to the natural feelings of the people,—and they require to be often repeated. This effect of muſic will be much aſſiſted, by the recital of heroic ſongs, that bear one expreſſion; by recounting and dwelling upon the life of an eminent warrior, ſo as to imbibe his ſentiments and ſoul, more particularly on the life of the modeſt Bayard,—*ſans Peur et ſans Reproche*,—the mirror of military men.

The author is aware, that much of what he has ſaid in the preceding pages, will be conſidered as the ravings of a viſionary; but he is convinced, from what he has ſeen of military ſervice, that the ſoldier, in whoſe mind ſentiments of virtue and honour do not predominate, is not ſimply unfit for his profeſſion in times of war;—it is from want of opportunity only, if he prove not dangerous to the ſtate. But while this is his opinion of the importance of the qualities of virtue and honour to the ſoldier, he is

further convinced, that it is leſs difficult to inſpire a mind, (that is not completely abandoned,) with heroic ſentiments, in ſuch force and form as to regulate future conduct, than to train the limbs to regular movements by fear of the rod.

The principle of the King of Pruſſia ſeems to be directed to the end, of baniſhing paſſion and ſentiment from the mind of a ſoldier,—of reducing him to mere animated matter. Others, on the contrary, do not attempt to baniſh paſſion or ſentiment from the mind, but not conceiving ordinary men, capable of ſuch ſentiments of dignity and pride of character, as can originate and regulate action, endeavour to implant the paſſion of vanity,—attachments to ornaments of dreſs and external appearances. The view is leſs odious than the former, but it is leſs honourable to the character of a ſoldier than it ought to be, and not effectual in its end. Vanity is a fleeting and capricious paſſion, of an infinity of modifications, and not capable, as pride or honour, of being equally or permanently impreſſed upon a body of men. Action therefore ſpringing from this ſource, will be uncertain in duration, disjointed in operation and little under controul: hence it is often obſerved, that vanity ſtimulates men to enter the field of battle precipitately, but that it does not preſerve them from leaving it abruptly: this belongs excluſively to pride and dignity of mind.

But if the conduct of the dignified ſoldier, be different from that of the vain or mechanical, in the field

of battle, the contraſt is no leſs ſtriking on the bed of ſickneſs. The ſoldier, whoſe motives of conduct have originated in the nobler qualities of the mind, proud in the conſciouſneſs of having acted well, appears on the bed of ſickneſs a venerable and an intereſting object; the ſoldier, whoſe leading motive has been vanity, and whoſe gratifications and pleaſures forſake him with his health, appears forlorn and deſponding; the profligate is an object of diſguſt; the mechanical ſoldier, indifferent in himſelf, is an object of indifference to others; he often ſeems to poſſeſs the reſignation of a philoſopher; but it is the apathy of a brute.—It is the duty of medical men, in all conditions, to uſe endeavours to aſſuage the bodily pains and ſufferings of the afflicted;—to be able to adminiſter eaſe and comfort, to a virtuous and heroic ſoldier, affords the ſublimeſt pleaſure that the mind of man is capable of enjoying.

THE MEANS OF IMPROVING THE ACTIVE POWERS OF THE BODY, AND OF PRESERVING HEALTH BY HABITS OF EXERCISE.

This is ſo profeſſedly a part of military concern, according to the idea of perfecting the machine in uniform and effective movement, that it is ſomewhat ſurpriſing, that a plan, formed upon ſcientific principles, and directed ſolely to this end, has not as yet been adopted, and acted upon ſyſtematically, by the warlike nations of Europe. For, though ſoldiers daily ſpend large portions of time under arms, the object, as far as the author has ſeen, is

more directed to reſtrain and repreſs, than to call forth and improve the exertions of the limbs. Yet in actual war occaſions often occur, where the exertions of the limbs—the rapidity of motions alone, decide the fate of a battle; and in all the minor operations of war, individual activity and addreſs are of great conſequence. The Romans,—but the Romans did not underſtand the improved ſyſtem of fighting battles by appearances, were moſt diligent and perſevering in improving the exertions of the limbs, by a ſeries of athletic exerciſes, by running, by wreſtling, by ſwimming, by unremittingly practiſing the uſe of arms of various deſcriptions, and by habits of marching with encumbrances, exceeding thoſe of actual war. In this manner, military ſervice became a paſtime; and the Romans, though they probably underwent fatigues not inferior to thoſe of modern armies, appear to have ſeldom complained of hardſhips.—But this is more ſtrictly a military ſubject,—the buſineſs here more directly concerns the preſervation of health.

It is a fact of common obſervation, that habits of exerciſe, or employment in the open air, contribute moſt eſſentially to the preſervation of health; that under indolence and reſt, the health languiſhes, and the vigour decays. It was a maxim with the Romans, and experience entitled them to form a maxim upon the ſubject, that habits of daily exerciſes, ſuch as in this luxurious and effeminate age would be deemed exceſs of toil, con-

tributed more to the preſervation of health, than all the rules of their phyſicians. The nature of things do not change capriciouſly, and if the maxim was true with ancients, it will not prove falſe with moderns: It has conſequently appeared to the author, incontrovertibly well founded, in an experience of twenty years and upwards, under various conditions of military ſervice. It was uniformly obſerved, that troops were healthy during the activity of a campaign, that diſeaſes multiplied in quarters or in ſtationary encampments; further, that men marched through unhealthy diſtricts for months with impunity, that the reſidence in one place, for a fortnight, was followed by the appearance of diſeaſe. It thus appears, that there is ſomething in activity of mind, and in exertion of body, which renders the frame leſs liable to the impreſſions of morbid cauſes,—which even perhaps removes thoſe cauſes when actually received.

It is cuſtomary to hear diſmal accounts, of the hardſhips and fatigues of armies; but there is cauſe to believe, that the ſufferings are oftener imaginary than real. The author ſerved in the American war,—he alſo accompanied the army, in the retreat through Holland;—the ſufferings were ſaid to be unparalleled, and there was certainly often great miſery; but there was not any thing in the ſervice itſelf, which deſerved the name of hardſhip, to a man qualified in mind and body to be a ſoldier. It is proved in the experience of every day, that

the health of man does not ſuffer from uniform hard labour; the powers of the conſtitution are perhaps worn out ſooner, and old age accelerated, but health during the time is not impaired; on the contrary it remains complete and uninterrupted. It is by habits of exerciſe only, in times of peace, that the body of man is formed to bear the toils of war with alacrity; and it does not appear, that the ſpace of eight hours a-day, ſpent in a ſucceſſion of ſuch exerciſes and amuſements, as engage the mind and excite an emulation to excel, is an over-proportion of time allotted to a purpoſe ſo eſſential. It muſt be remembered, that it is endurance of toil—not force of momentary exertion, which determines the value of a ſoldier; and it is known, that the habit of endurance is only acquired, by long continued cuſtom.

ARRANGEMENT OF TROOPS.

The arrangement or claſſing of troops, according to the prevailing plan of diſcipline, is entirely directed by the ſemblance of exterior form. The combination of rapid motion and united action, is the object in view in forming men for war, or the ſhock of battle; and it is generally known, that men, who exteriorly reſemble each other in figure, often differ widely, not only in the principle which acts upon the mind, but in the natural exertions of limbs, which, under the operation of ſtrong cauſes, are apt to forget artificial reſtraints. If there exiſts an inſtance, where a corps has advanced to battle,

to the diſtance of twenty yards from the enemy, meaſuring its paces by the ſwinging of a pendulum, and after having loſt two thirds of its numbers in this poſition, has retreated, by word of command, in preciſely the ſame order in which it advanced; the mechanical diſcipline muſt be allowed to have attained great perfection. Men might then be ſaid to be trained, to withſtand the effects of fire-arms; they would ſtill perhaps give way to the ſhock of the bayonet. The calculations of the King of Pruſſia, ſeem to have been made upon fire-arms only; the effect of the bayonet can not ſo well be reduced to mechanical rule, and had experiment been made, his concluſions would perhaps have very often been overturned. It is certain, that the habit of mechanical drilling, long continued, very much blunts the ſenſibilities of the human mind, but it cannot extinguiſh them; and while it blunts the ſenſibilities, which originate ſentiment or paſſion, it implants no principle which produces thoſe animated efforts, which, in all ages, and under all conditions, have mocked the calculations of mechanical generals. It will therefore, perhaps be a more effective manner of arranging men for the ſhock of battle, to eſtimate the qualities of mind and the exertions of limbs, as tried and proved in the various contentions of athletic exerciſes. Arranged, as much as poſſible, according to theſe correſpondences, a bond of union would ariſe, cemented in the foundations, and not to be diſſolved by ordinary cauſes. In this manner, the conduct of raw and undiſciplined

Highlanders only can be explained. The mind in unison, the limbs poſſeſſing a correſpondence of exertion, from cuſtoms and habits in their native mountains, they are impetuous and united in the charge; but what would leſs be expected, they have alſo proved a ſhield to an army under route.

CHAPTER II.

Military Economy.

THE preceding pages contain ſome remarks on the principles of diſcipline, a ſcience, which belongs more particularly to military men; the following contain ſome remarks on economy, as connected with health, a ſubject more immediately under the obſervation of the ſurgeons of armies.—The diet, dreſs, care of perſon, the attentions neceſſary in embarkations, with the manner of conducting active ſervice, particularly in tropical climates, are the principal objects in this inquiry.

DIET.

The preſent is a ſubject of material importance to an army; but it is a ſubject ſo circumſtanced, that the voice of experience and reaſon deſpairs, to prevail over the rooted prejudices of depraved appetite. It is a common opinion in moſt countries of Europe,—it is a maxim in ſome, that man per-

forms labour and undergoes fatigue, only in proportion to the quantity of food he conſumes. If the opinion regards the exerted labour of a few hours, it may not perhaps be altogether without foundation; if it regards continued labour or military ſervice, nothing is more remote from truth. The Athletæ of Greece were highly fed; they acquired muſcular power, but they were bad ſoldiers. The Arabs are abſtemious to a proverb; they ſeldom ſuffer from acute diſeaſe, and they ſupport fatigues to aſtoniſhment. The chief ſupport of the Ruſſian conſiſts of bread and cucumber; no nation bears military toils better, or acts more obſtinately in the field of battle. The Highlanders of Scotland live poorly in their native country, at all times; they lived ſtill more poorly, when their military character was higher, perhaps than it is even now: the toils, they underwent, on oatmeal and water, under Viſcount Dundee, appear incredible to luxurious and pampered nations. General hiſtory thus bears teſtimony to the advantages of abſtinence over full living, in ſupporting labour and fatigue, ſimilar to the fatigues of war. The ſame truth is proved expreſsly, in the example of individuals. Powel, the famous walker, and others, who have performed ſimilar journeys on foot, all found it convenient to diminiſh the quantity, and change the quality of diet to the moſt light and digeſtible, while under exertion. Tea, with bread and butter, appears to have been the moſt acceptable; and it was ſuffi-

cient, in point of nouriſhment, for a long continuance of toil. An egg boiled hard, or an onion with a morſel of bread, and half a glaſsful of brandy, will be found better, upon a march or journey, than a full meal of rich food, with a proportion of wine or malt liquor. The experience alluded to ſufficiently juſtifies the rule, that while the diet of ſoldiers be, at all times, under what is eſteemed full living, it ought to be reduced, by at leaſt one third, in times of hard ſervice or long continued exertion; and, at ſuch times, the principal repaſt ought to be delayed till evening, or till the ſervice of the day be over, and the tumult of the blood, ariſing from exertion, ſubſided. On ſuch occaſions, ſoups or ragouts are the proper form of food. Vegetables ought always to be largely mixed, with the diet of a ſoldier. Milk, tea, coffee or bouillon, are neceſſary for breakfaſt.

It thus appears, from the experience of the maſs of temperate nations, and from the experience of the temperate individuals of luxurious nations; that abſtemious, ſober, even poor living, better agrees with the body, under the performance of fatigues, ſimilar to military fatigues, than full meals of animal food. The fact ſtated, is indiſputable in authority, and thoſe, who are acquainted with the laws and powers of the human conſtitution cannot fail to know, that it is uniformly true in principle. Full and pampered living, is well known to increaſe the bulk and volume of

the muſcle, and perhaps, under this regimen, the ſudden exertions of actual ſtrength may be rendered more powerful; but as it is proved in experience, that the endurance of fatigues is not well ſupported under habits of full living; ſo it is agreeable to reaſon, that the increaſed irritability, neceſſarily reſulting from ſuch practice, deſtroys the foundations, on which endurance depends.

Water, is the drink intended, by the Author of Nature, for both man and beaſt. It is capable, under ſome conditions, of being improved, but it oftener is adulterated. The Romans furniſhed their ſoldiers with an allowance of vinegar, for the purpoſe of being mixed with water, when water was hot, flat or leſs pure. The practice is an example for imitation. Vinegar, diluted with water in a certain proportion, furniſhes an agreeable beverage in hot weather; and it has the further advantage of reſtraining the quickened circulation of the blood, and repreſſing the diſſipation, occaſioned by continuance of exerciſe, or long continued marching. A ſtrong infuſion of tea has ſtill more extraordinary effects,—removing laſſitude and invigorating the frame, worn out by long watching and long travelling, in a degree ſuperior to any thing known. Wine, unleſs extremely diluted, is a hurtful beverage, under the actual performance of ſervice; and malt liquor leaves a drowſineſs and torpor on all the animal functions. Rum and water, or grog, has effects not leſs hurtful than malt liquor, in the hours of

exertion; and the bounty of nations, which grants to ſoldiers daily allowances of rum, under the idea of enabling them to ſupport fatigues, while it is miſtaken in principle, as it regards effect, has pernicious conſequences upon morals, by neceſſarily inducing a habit, which converts an old ſoldier into a ſot. But though grog, or rum and water, be generally a hurtful or dangerous beverage, yet a very ſmall quantity of ſpirits undiluted, taken at proper intervals, is found in experience to be uſeful in ſuſtaining the body under fatigue; and the reaſon may be explained, conſiſtently with the laws of the human conſtitution.

DRESS.

Uniformity of dreſs is a rule fundamentally regarded in forming an army; but the gay coup d'oeil of a parade, occupies, in general, too much of the attention. Convenience and utility are here the chief objects in view; though acceſſories as can add to the martial figure of the man, are alſo of ſome conſideration. It is preſumed a ſoldier would find himſelf conveniently dreſſed, and prepared for the ſervice of the field in the following manner: A round hat, with a deep and ſtrong crown, capable of reſiſting the ſtroke of a ſabre, and of ſuch a form as to remain on the head without trouble;—the ornament is a matter of fancy. A coat and waiſtcoat of the uniform cloth of the nation—the coat, without facings, or with facings, which do not require to be cleaned by means of pipe clay,—the form in

all reſpects eaſy, or large, and, in a particular manner, full over the cheſt,—capable of being buttoned to the bottom of the trunk,—the ſkirts not reaching lower than the middle of the thigh. The pantaloons, which as they are more ſimple than breeches and leggins, are therefore better ſuited for the dreſs of a ſoldier, ought to be large and eaſy, of good cloth, and rendered durable, by having the inner ſeams covered with leather; the advantages of half boots, of good manufacture, with ſtrong ſoles, are obvious for marching in bad roads,—light ſhoes may be more convenient, on ſome occaſions. With the addition of two pairs of flannel ſocks, two pairs of drawers, two ſhirts,—coarſe linen, flannel or cotton, a razor and ſoap, combs, a bruſh for ſhoes, a ſponge for waſhing the body, and a towel for drying it, the ſoldier will find himſelf ſufficiently equipped for a campaign; and further, if he be furniſhed with a cloak or great coat, to which there is a hood, and two pockets, by way of havreſack, for the neceſſaries, he would move light on the march, be little encumbered in action, and be capable of reſiſting weather, from the month of April to the month of November. In tropical climates, the hat may be formed of lighter materials, the cloth of the uniform may be thinner, with pantaloons of dowlas or fuſtian, in place of broad cloth;—the cloak is particularly neceſſary; and the habiliment ought to be ſo arranged, as to be eaſily laid aſide under heat, or readily reſumed when the winds blow ſharply.

CARE OF THE BODY.

Experience has proved it true on numerous occaſions, and knowledge of the laws and economy of an animal body declare it to be true on all, that the proper reſource of health conſiſts in innate vigour of conſtitution, fortified and rendered ſuperior to the impreſſions of the cauſes of diſeaſe, by habits of exerciſe and fatigue, under expoſure to viciſſitudes of weather; yet it is not denied, but that attire, judiciouſly managed, may contribute materially to this purpoſe. On this ground, ſhirts of woollen or flannel have been ſuggeſted as an article of neceſſary utility, for troops in the field. Flannel affords an agreeable and pleaſant warmth. It is uſeful in guarding valetudinarians againſt colds, rheumatiſms and diſeaſes of the breaſt; but the idea of a valetudinary frame does not belong to a ſoldier, while acceſſory means of preſerving health, are not properly intruſted to the diſcretional uſe of men, too often ſlothful and careleſs of themſelves. It is neceſſary, that the clothing of troops be arranged upon one principle, and that individuals have no option of choice, or means of change. Flannel, is, perhaps upon the whole, a better material for the ſhirts of ſoldiers, in times of ſervice in Europe than linen; and if determined to be more proper, it ought to be employed to the total excluſion of the other; in tropical countries, there is no proof from experience of its benefit, while ſenſation and reaſoning incline us to believe, that there is probable harm, from the

accumulated degree of heat, or the exhauſting perſpiration, which neceſſarily reſults from the uſe of it. But though flannel appears to be leſs proper than linen or cotton, for the ſhirts of ſoldiers, in tropical countries; it has farther often been connected with a ſerious evil, in Europe. The contagious fever, which produced an unexampled mortality in the early period of the preſent war, though not originating from flannel clothing, was, in a very material degree, concentrated and propagated by means of it. It is not pretended, that this aroſe from the fault of the clothing, but clothing of this ſort more eaſily covered the defects of the economy, on which the propagation of the contagion ſo materially depended. It is preſumed, that a ſoldier would not ſuffer from the inclemencies of weather, dreſſed in the manner mentioned above; ſo with more confidence would he be preſerved ſecure from contagion, if ſubmitted every morning to the following diſcipline. If ſtripped naked and waſhed clean in cold water,—the ſea or a running ſtream, rubbed dry with a coarſe towel, and, under rubbing, expoſed to the pure air,—combed, the clothes, in the mean time, being ſhaken and expoſed to the wind: if exerciſed in walking, in running, in jumping, and wreſtling or fencing, for two hours before being permitted to retire to breakfaſt, the body would be effectually purified from any lurking ſeeds of diſeaſe; it would even be ſo fortified by thoſe invigorating habits, as to become little ſuſceptible, on any occaſion, to morbid impreſſions. Numer-

ous advantages, beſides health and cleanlineſs, might be derived from this cuſtom. The ſtrength and vigour of the limbs would be improved, the correſpondence of exertion might be meaſured and known, ſo as to be converted to uſeful purpoſes in war; the beauty of the military form, which conſiſts in elaſtic ſenews, a complexion imbrowned by toil in the field, and perfect cleanlineſs of perſon, would captivate the eye; and while clean, healthy, and active in body, the mind could not fail to acquire ſome portion of ſimilar qualities.

MEANS OF PREVENTING THE INTRODUCTION OF DISEASES OF CONTAGION INTO REGIMENTS OR TRANSPORT SHIPS.

Regiments often ſuffer ſeverely from the incautious manner of incorporating recruits, raiſed in manufacturing towns, or received from jails or workhouſes, where contagious diſeaſes prevail. Under ſuch circumſtances, the moſt ſcrupulous exactneſs is neceſſary, and wherever ſuſpicion exiſts, though no actual diſeaſe may appear, the recruit ought to undergo a moſt rigid quarantine. It will be proper in the firſt place, that he be ſtripped naked, the clothes being deſtroyed or purified, that the hair be cut ſhort, the head and body completely waſhed, that he be clothed anew, and not permitted to join his comrades, for three weeks or a month. Convaleſcents from infected hoſpitals, deſerters, parties, who have been guard over infected hoſpitals or priſons, ought in all caſes to undergo purification, be-

fore they be admitted into the barracks of the regiment.

But, beſides the alterations neceſſary to prevent the introduction of contagious diſeaſe into regiments, particular care is required to prevent a ſimilar introduction on board of tranſport ſhips, when troops embark for foreign ſervice. It will then be proper that a ſcrutiny be made, previous to embarkation, by an officer of the medical ſtaff, of the health of every individual corps. Simple inſpection is not ſufficient; the hiſtory of the preceding period muſt be known, and every teſtimony ought to be ſcrupulouſly examined, as the medical officer muſt hold himſelf reſponſible for the conſequences. Health has been ſo often ſacrificed to ignorance, to inattention and neglect, that it is preſumed a rule will be formed to prevent in future, as much as poſſible, the commiſſion of ſimilar errors.

When the means of embarkation are known, and the ſound ſeperated from thoſe actually ſick or ſuſpicious, attention is required in arranging the mode. Thoſe actually ſick or ſuſpicious, being ſeparated from their more healthy comrades, muſt be diſpoſed of in ſhips allotted to the purpoſe; and as they arrive on board, it will be proper that they be ſtripped naked, waſhed clean, laid in clean bedding, or clothed entirely anew. It is cuſtomary to embark troops by grand embarkations;—it will be more convenient to embark them in ſmall parties, that they may be arranged in their places, in an orderly manner, on arrival; for hurry and confuſion are ne-

ver failing conſequences, when a croud of men is thrown ſuddenly on board of ſhips.

The clothing of ſoldiers is generally more injured, during the period of embarkation, than under other conditions. A dreſs for the voyage, varied according to the ſeaſon of the year or the deſtination of the ſervice, would, on this account, be both economical and convenient. A jacket and trowſers of canvas, with a foraging cap, will be found ſufficient in ſummer, or in voyages to a ſouthern latitude; the addition of a jacket of coarſe cloth, will make it ſuitable for any deſtination in European ſeas. A round hat, with a watch coat, for thoſe who are on duty, during the night, or under rain, renders the equipment complete.

The accommodation of troops, on board of tranſports, has met with a great deal of attention during the preſent war; yet ſickneſs and mortality have been unexampled. The veſſels, it muſt be acknowledged, are in themſelves generally good; but the ſeeds of contagion,—the legacy of predeceſſors, are often found ſo obſtinately attached to the timber, or ſo inſinuated into the ſeams of the lining, as to elude the ordinary means of purification. When a ſhip is taken up for the tranſport of troops, it will be neceſſary to learn the preceding, as well as to aſcertain the actual health of the crew, ſo that ſoldiers be not inconſiderately embarked in veſſels, where the ſeeds of diſeaſe exiſt. The means of purifying veſſels need not be repeated here; nor is it neceſſary to ſay any thing in recommendation of

hammocks, in preference to platforms with flock matraſſes, as the advantages are fully conceived, and the practice very commonly adopted: but it will not be ſuperfluous to offer a few remarks, on diviſion of accommodation and arrangement of the inferior parts of economy.

In the firſt place, it will be proper to cut off a part of the ſhip, (in preference to others the ſpace between the foremaſt and the head), by a partition of canvas, which part will be again divided, or ſeparated longitudinally, by painted canvas, nailed firmly to the decks;—the one diviſion allotted to the accommodation of the married people, the other reſerved for an hoſpital,—provided with cradles, a ſtove, ſcuttles, port-holes and a hatchway of its own, ſo that the ſick, and thoſe who are well, be not under the neceſſity of having communication or intercourſe with each other: further, an armoire or pantry, in ſome convenient part of the ſhip, with diviſions for the different meſſes, is an accommodation of no great expence, and of moſt evident utility; an offal tub, for every two meſſes, is likewiſe a neceſſary proviſion, in time of dinner, as without ſomething of this ſort, the decks will be ſtrewed with crumbs of bread, fat of pork, bones and other nuiſances. A ſtove, capable of being carried round the ſhip, to dry the decks when wet, and to diſſipate ſtagnating air from parts, leſs in the current of ventilation from the wind ſails, is neceſſary to every tranſport,—to which may be added a large bathing tub and a waſhing trough. If ſoldiers were equipped

after the manner ſuggeſted in this tract, few encumbrances would appear between the decks of a tranſport ſhip; but as this is not the caſe, and probably never will be the caſe, it will be proper to lodge in the hold, or other ſecure place, all the ſuperfluous baggage, particularly the baggage of women, which, by attracting exhalation, and encouraging an accumulation of dirt, becomes an inſtrument in preparing the contagion of diſeaſe. A ſoldier, on board of ſhip, requires no more than one complete change of apparel; and it deſerves to be known, that the addition of an handful of oatmeal, to a tub of ſalt water, will enable him to waſh his linen or flannel in a comfortable manner, as often as he pleaſes. If embarked in a healthy ſhip, ſhifted twice a-week, and waſhed all over with ſalt water every morning, there will be no cauſe to apprehend the appearance of contagion: under ſuch diſcipline, the progreſs of it will be checked,—perhaps the exiſtence of it might be deſtroyed.

The perſons of ſoldiers being waſhed daily, the clothes purified, by beating and expoſure to the wind, according to an uniform and ſyſtematic plan, the bedding and other encumbrances removed from between decks; the ſcraping, cleaning, and ſweetening of the ſhip, with vinegar or other means, performed according to rule; the air of the parts, leſs perfectly ventilated, put in circulation, by means of ſtrong heat, or exploſions of gunpowder; the breakfaſt prepared and ſerved out; the parade diſmiſſed, and the ſeveral duties of the day appointed; a ſeries

of exercifes and amufements, fuch as the nature of circumftances will beft permit, is next to be inftituted, for thofe who are unemployed. Fencing and cudgelling are eafily performed on board of fhip; and they are well adapted to call forth and improve the military qualities of a foldier. Dancing exhilirates the fpirits, and by exhilirating the fpirits, independent of its good effects by exercifing the limbs, it conduces to health: a bagpipe or fiddle will therefore be an ufeful inftrument on board of a tranfport. It is of importance to guard againft the apathy and indolence of mind, which infenfibly creep upon foldiers during a paffage at fea. In this view the finging of warlike fongs, and the recital of martial atchievements may be fo managed as to produce confiderable effects: nor are the duties of religion of inferior importance; for whatever may be common opinion, it has ever appeared to the author, that a foldier refpected himfelf more, and confequently was a better foldier, the day on which he had publicly prefented himfelf before the Deity, than at other periods.

ACTIVE SERVICE.

When a foldier is formed, according to the plan of the preceding pages, with a mind ftrong in virtue, a body hardy in toil, content with fimple fare, and depending wholly upon himfelf, the fervice of a campaign becomes paftime: fatigue and inconvenience are not then known; for as fatigue and inconvenience are relative to conditions, the

degree of fatigue, which overpowers a luxurious enemy, will not be felt by the ſoldiers of a hardy nation. The capability of enduring fatigue will thus, in moſt caſes, triumph over force and numbers, though actual courage, if it came to the ſhock of battle, were equal. A ſoldier preſents himſelf as a man of qualities ſuperior to the citizen; but he does not deſerve the name of ſoldier, till he as much excels in ſelf-denial, as he is ſuppoſed to excel in courage. Every man, even every officer has the power of carrying with himſelf every thing that is neceſſary for real uſe;—baggage horſes, and baggage waggons, ought not perhaps to be known in an army. Such encumbrances have often cramped the operations of war; and ſuppoſed comforts, are frequent cauſes of great miſeries. The nature of man in reality wants little; and the man who bounds his deſires, by the real wants of his nature, ſeldom meets with a hardſhip, or finds cauſe to murmur; he always depends upon himſelf, and, with a preparation of ten minutes, will find himſelf, ready at any time, to change his encampment, or to meet his enemy. The luxury of modern times, has rendered war a very complex and heavy operation. A city ſeems to riſe upon the plain, and the defence of it neceſſarily occupies a conſiderable ſhare of the care of the general:—Such defence, in fact, often employs that aſſiſtance which, in the field, might have ſecured the fortune of the day. Numerous encumbrances appear on the march, but beef and bread are the

only things eſſential, and the only things which demand attention. Camp equipage is not ſimply a ſuperfluity;—the moſt pernicious contagions are often found in tents; and tents, once infected, can only be purified by being reduced to aſhes. A ſoldier clothed in the manner pointed out, waſhed every morning in cold water, expoſed to the air naked, and actively employed during the day, will not ſuffer from cold or rain, in point of health; on the contrary, he will be ſecure from contagious fever, from colds or rheumatiſms; while the encumbrances of the troops, will not prevent the general from changing his poſitions frequently, without trouble or inconvenience;—by this means health will be preſerved, and the mind kept active and alert.

Military ſervice differs in ſome reſpects in Europe and in tropical climates. Few perſons pretend to deny, that exerciſe, even military ſervice, in a moderate degree, conduces, in Europe, to the preſervation of health; in the Weſt Indies, exerciſe, unleſs in the mornings, is believed, by moſt people, to be hurtful; military ſervice, in common opinion, cannot be ſupported. The fact has appeared otherwiſe, in the experience of the author; and, as the matter is of great importance in the management of troops, it will be proper to ſtate the conditions, under which it has ſo appeared.

From the beſt information that could be obtained of military ſervice, in the Windward Iſlands, the troops were healthy, while they were regularly

and actively employed; they ſickened in prodigious numbers, when the campaign was ended; they alſo ſuffered from deſultory exertions. The rule is general; it was exemplified, in many inſtances, among the troops connected with St. Domingo. The detachment, which firſt took poſſeſſion of the iſland, was actively employed for ſome months, and it remained healthy; the buſineſs being accompliſhed, or the ſervice become ſtationary, ſickneſs appeared and made great progreſs. A tranſport ſhip was taken by the enemy, in the year 1796, and carried in to Cape François: the captive ſoldiers were employed in daily hard labour,—in the loading and unloading of veſſels, &c. the ration of diet was one pound and a half of bread, a bad ſalt herring and a very ſmall quantity of rum, given at two different times. The term of captivity was from ſix to ſeven months, and when the exchange was effected, in the beginning of the year 1797, the contraſt with the troops in garriſon at the Mole made a forcible impreſſion; inſtead of languid motion of the limbs, a ſallow countenance, a heavy and lifeleſs eye, common to the ſoldiers at Britiſh poſts; the motions of the limbs were active and energetic, the countenance clear and animated, the eye lively and ſparkling; in ſhort, the priſoners ſeemed to be men in poſſeſſion of full health; they experienced little ſickneſs in their captivity, and very inconſiderable loſs; for it is but juſtice to obſerve, that, when ſick, they were uniformly treated with the ſame tenderneſs as the ſoldiers of

the Republic. They became ſickly in a ſhort time after return,—probably from the eaſe and full ration of Britiſh regimen. The poſt of Irois, in the diſtrict of the Grande Anſe, is one of the moſt unhealthy ſituations in St. Domingo. It was beſieged in the month of Auguſt 1796; and previous to the commencement of the ſiege, the garriſon had ſuffered from ſickneſs. During the actual continuance of ſiege, ſickneſs was in ſome meaſure ſuſpended; but it returned with ſuch violence, after the enemy retired, that few eſcaped, who came within the atmoſphere of the place. The fatigues, experienced during the ſiege of Irois, were, in common opinion, eſteemed the cauſe of the ſickneſs; the reſt after fatigue, ſeems to be the cauſe in reality. A company was formed at Port-au-Prince, from the 66th and 69th regiments, for ready and active ſervice. While actually employed, the ſuperior degree of healthineſs was ſtriking and obvious to all connected with it. The Honourable Lieutenant Colonel Stewart, who commands the 67th regiment, (who ſeems to have penetrated deeper than common, into the principles of diſcipline, as directed to the culture of the mind, as well to the care of the body,) gave proofs at the Mole, as far as his limited means permitted, of the benefits of active and enterpriſing ſervice, in the preſervation of health. The light company of his regiment, was frequently employed in ſmall excurſions; during this time it remained healthy, while the other part of the regiment, confined to

the duty of the garriſon, experienced great ſickneſs and conſiderable mortality. It thus appears, from authority which may ſtrictly be deemed military, that exerciſe, even the fatigues of a campaign, may be ſuſtained without injury to health, during the continuance of ſervice, whether of one week or of three months. Sickneſs occurs at the termination of the ſervice; but that ſickneſs, there is reaſon to believe, may be warded off, if the principle of its cauſe be underſtood: that principle appears to conſiſt, in an exceſs of irritability,—accumulated by reſt, augmented by full living,—while the effect of reſt and indulgence in producing diſeaſe generally bears proportion to the preceding habit of exertion and abſtinence. Military experience confirms not only the ſafety, but the benefits of habitual exerciſes, and of active ſervice in the preſervation of health; the examples of individuals, more clearly demonſtrate the value of its effects. A man, who lives well, eats turtle and drinks Madeira, who moves out only in the mornings or evenings, on horſeback or under an umbrella, and drags his limbs as if they did not belong to him, will, if fed on vegetable diet, or the lighteſt ſorts of animal food,—and that in ſmall quantity, with beverage of pure water or lemonade, become regardleſs of the ſun, and walk or ride at any time of the day, without experiencing headach, from exceſſive heat, or a wearineſs of limbs, from a long journey.

The benefits of the capability of ſuſtaining fatigues being obvious in war, the ſafety and practi-

cability of it aſcertained to be not incompatible with the health of Europeans, in tropical climates, a plan ought to be formed, capable of cultivating the habit, in ſuch manner, that it become engrafted upon nature. The mode of accompliſhing this object depends much upon the conditions of the country. If the country be in a ſtate of peace, the arrangements may be made in complete and ſyſtematic form, while the execution will not meet with interruption; but if at war, or if partly poſſeſſed by an enemy, the arrangement will be imperfect, and the execution is liable to be diſturbed. In this caſe, poſitions, choſen in the moſt important paſſes of the mountains, ſtored with the proviſions of war, capable of being defended by a ſmall number of men, or of affording occaſional covering to a large body, come to be conſidered as fixed points in a cordon, for maintaining the ſecurity of which the ſervices of the troops are employed. In patrolling this boundary, either for the protection of the friendly diſtrict, or in hunting the woods for ſubſiſtence, (for troops may be taught, and they ought to be taught to ſupport themſelves in a tropical country, by their muſket and the culture of the ground), the character of the mind will become bold, adventurous and ready in danger, the body healthy, vigorous,—even in a manner, inſenſible to the impreſſion of the cauſes of diſeaſe;—the ſoldier will thus be formed to the purpoſes of his ſtation. This improvement of the health of body and vigour of mind, by habits of

exercise, particularly hunting, is a physical fact; —it belongs to the commanders of armies, to direct it to a militaty object.

The choice of encampment, cantonment or military post, is a most important object in tropical climates; for inattention, on this head alone, often defeats plans, in other respects judiciously formed. The sea-coasts are less healthful, in most parts of the world, than the interior. This is particularly exemplified in hot countries; and, in the islands of the West Indies, the air of the sea-coasts is often, in a manner, pestiferous, while the air of the interior is not less salubrious, than that of many countries in Europe. On the coasts of the sea, the form of disease is fever,—often of the most concentrated kind; on the first mountains, it is often fever, but it is mild, remitting, intermitting; sometimes it is diarrhœa, sometimes ulcer of the legs; in advancing into the interior, the shades become still milder; and, upon the central ridge of extensive islands, sickness, in any form, is seldom known. This fact has been clearly proved, in the Island of St. Domingo: it deserves to be attended to, in the distribution of military forces, in others.

The above rule is a general one. Circumstances may, and sometimes do arise, which render interior situations different from what is here described; but it will not, even in such cases, be found that the principles of things change. Swamps and lakes are often seen in the interior parts of countries; and the neighbourhood of swamps and lakes is usually

unhealthy. Such ſituations are conſequently avoided in cantoning of troops, or in fixing of military poſts; for though ſtrong poſitions by nature, they become weak in effect, by the deſtruction of health which enſues. It is from ſtrong cauſes only, that the occupying of unhealthy poſitions can be defended; when indiſpenſable, in forming a connected chain of defence, to cover the neighbourhood, with plants which require much nouriſhment, and, above all, with lofty trees of rapid growth,—ſeems to be the beſt means of remedying the evil. Inſtead therefore, of cutting down timber, on the banks of rivers, or on the borders of ſwamps, lofty and ſpreading trees ought to be permitted to remain,—even planted, if they do not exiſt naturally. On this principle, a range of ſpreading and lofty trees, planted on the banks of the Delaware, for ſome diſtance above and below Philadelphia, and upon all the offenſive places, bids fairer to prevent the riſe and progreſs of the yellow fever, than ſhutting the ports to ſtrangers. There are many inſtances in hiſtory of ſimilar remedies.

It is a common rule, in occupying poſts or cantonments, to avoid the actual ſeat of ſwamp; but heights, in the neighbourhood of ſwamps, are frequently choſen for the purpoſe. The rule is miſtaken. It is a truth, verified on too many occaſions, that a height at the diſtance of a quarter of a mile, or even more from a ſwamp, and expoſed to the atmoſphere of that ſwamp, is leſs healthful than the level margin of the ſwamp itſelf. Further, ſuch grounds, as are

cleared of their woods, are commonly preferred for the encampment of troops. The practice is founded in error,—on an imaginary idea of a pure and free-circulating air. It is evident that grounds, newly ſtripped of their woods, partake, in ſome meaſure, of the nature of ſwamp; and as vegetable production does not exiſt in ſuch caſe, the unappropriated cauſe of vegetation, abounding in exceſs, extends around, and infects the atmoſphere to a certain extent, with ſomething unfriendly to the health of man. But, beſides thoſe grounds which are newly cleared of woods, other ſituations, where the ſoil is bare and barren, or covered with ſhrubs and ſtunted plants, do not appear to be healthy, though even rocky and dry. The air of a well clothed country is ſalubrious; nor is it mere coolneſs, which renders the ſhade of a tree agreeable; an enlivening principle is communicated to the ſurrounding atmoſphere, from the foliage.

CHAPTER III.

Scheme of Medical Arrangement for Armies.

An attempt has been made to inveſtigate a principle, upon which the military qualities of a ſoldier may be improved, and the health preſerved; a few pages will now be allotted, to point out a mode of arrangement, by which ſpeedy and effective aſſiſtance may be enſured in the event of diſeaſe. The firſt and eſſential object,—the prompt application

of effectual means, is connected with a ſecondary object, the ſum of expence required to provide, and ſupport the effective eſtabliſhment alluded to.—The prompt application of means is ſecured, by the eſtabliſhment of hoſpitals, for corps or regiments; but that theſe eſtabliſhments be effective and complete, the plan of arrangement muſt be formed upon a broad and ſcientific baſis.

The medical officers of an army conſiſt, according to the plan of arrangement propoſed, of one ſurgeon,—of one or of two aſſiſtant ſurgeons for each regiment, according to the ſtrength of the corps, or the nature of the ſervice, on which the corps may be employed; of an inſpector, for each iſland, diſtrict or diviſion of troops, under a major-general; and of a ſuperintendant, or inſpector-general, for an army, under a commander in chief. The above is a ſufficient proviſion of medical officers, for the ordinary buſineſs of an army; but, where twenty or thirty thouſand men enter upon a campaign, in which actions of magnitude may be expected to occur, an extra appointment of ſurgeons for the field, as alſo, the eſtabliſhment of an hoſpital, in a ſecure place, for men badly wounded, or labouring under chronic diſorders, will further be neceſſary. Two ſurgeons for the field,—expert and active; two ſurgeons for the hoſpital,—experienced and ſkilful; with one phyſician, and the requiſite number of aſſiſtants, will be ſufficient extra aſſiſtance for an army of the ſtrength ſpecified.

But though it be preſumed, that the above pro-

viſion of medical officers will be found ſufficient in number, and well adapted in arrangement, to the exigencies of an army in peace or war; yet unleſs there be fitneſs for the office in all parts,—in the higher as well as lower ranks, confuſion and embarraſſment will occur daily; the health of the ſoldier will be neglected, and life will be ſacrificed to miſmanagement. If the health of an army be an object of real concern to a nation; or if a nation believes the art of healing to be any thing more than a name, the arrangement of the medical department will occupy a conſiderable portion of its care. Inſtead of the vague examinations and inadequate proofs of qualification, upon which young men are appointed to the office of ſurgeon in armies, teſts of correct morals, of actual knowledge, and, more particularly of the capacity of improving in knowledge, ought to be produced openly and publicly, before an office of ſuch importance be beſtowed. Theſe qualifications, perhaps, can only be obtained, and the degrees of knowledge and capacity aſcertained, under the eſtabliſhment of a medical ſchool.

A ſchool, eſtabliſhed in a convenient part of a kingdom, for the purpoſe of inſtructing youth, deſtined for the medical ſervice of the army, promiſes great advantages to a nation. But it will be required that candidates or pupils, for this inſtruction give proofs, before admiſſion, of being generally and liberally educated, and of having previouſly ſtudied the rudiments of their profeſſion in an univerſity. Being admitted pupils of the medical ſchool, they will re-

ceive the ſubſiſtence of aſſiſtant-ſurgeon, during the ſpace of one year,—the term of probation: it will further be proper, that there be a period fixed for admiſſion, ſo that the progreſs in improvement may be fairly eſtimated. At the expiration of the year, a college of phyſicians and ſurgeons being ſummoned to examine, and to form an opinion of the progreſs, the actual degree of knowledge, and capacity of improvement, among individuals, a ſcale will be formed of the order, in which promotions will be conferred, when opportunities occur. A phyſician and ſurgeon, men acquainted with military ſervice,—ſcientific,—capable of inſtructing, and not devoted to the purſuit of gain, being appointed to conduct the buſineſs of this ſchool, to allot to each pupil one or more patients, to ſuperintend the management, and to arrange matters, in ſuch a manner, that the judgment and diſcernment of the pupil appear daily in his written notes, materials will be afforded by which, at the time of examination, the college will be enabled to form an opinion of talent, or capacity of future attainment in knowledge. Thoſe, who, upon this examination, diſcover no marks of genius, muſt be remanded to civil life; for as it is an undeviating rule, that promotion be invariably beſtowed upon diligence, and length of ſervice; ſo it muſt be a previous rule, not to commiſſion, as ſurgeons, any others, than ſuch as poſſeſs the requiſite talent of proſecuting improvement. In this manner, ſurgeons of the army, being well qualified in their profeſſion, and reſpectable in their private character, would maintain in eſtimation, the con-

ſequence which is due to the office of preſerving, and of reſtoring the health of men. A remark here forces itſelf into notice, that the medical department is inferior in eſteem, to the other departments of armies,—even to that of iſſuing proviſions, or of keeping accounts; yet it is in reality, of the firſt importance; but to conduct it properly requires talent,—a genius to connect and arrange jarring and diſcordant occurrences, and a comprehenſive philanthropy, to embrace all the concerns of the miſerable and afflicted.

According to the plan propoſed in this place, the health of an army will be principally committed to the care of ſurgeons of regiments. The advantages of enſuring more prompt aſſiſtance in diſeaſe, and of maintaining the cuſtomary diſcipline of the corps, are ſecured by this means: they are obvious in benefit; but an objection will perhaps be ſtarted,—the ſcheme is not practicable, in an army employed upon ſervice. The opinion is aſſumed from appearances. Circumſtances will ariſe, on many occaſions, in the courſe of an active campaign, which command a removal of the ſick and other encumbrances to ſome diſtance from the army, but medical officers are provided for this contingency, while the waggons, required for tranſport, and the houſes, neceſſary for accommodation, are as eaſily procured on the footing of regimental, as of general hoſpitals. But there is no room for ſuppoſitions, where poſitive facts exiſt. The plan propoſed has been practiſed in actual war,—in dif-

ferent and in ſickly climates. In the regiment, in which the author ſerved during the late war in America, there was often a great, even ſometimes a prodigious degree of ſickneſs; for ſervice led the corps to diſtricts ſingularly unhealthful; yet it had ſeldom any thing to do with general hoſpitals; and, the miſeries of ſickneſs, meaſured with the miſeries of general hoſpitals, were of ſmall account. From the 20th of January 1795, to the beginning of April, the third regiment of foot, or Buff, carried along with it a conſiderable liſt of ſick.—The miſeries, notwithſtanding the requiſite preparation for this meaſure was not made, bore no compariſon, with the miſeries of general hoſpitals. In St. Domingo, the foreign and colonial ſick were latterly, entirely under the care of the reſpective ſurgeons, in regimental hoſpitals. The officers and ſurgeons, were prejudiced againſt the meaſure, and, as might be ſuppoſed, entered into the execution of it, with no great cordiality. Movement, detachment, even ſome ſhare of field duty, took place in the courſe of the ſeaſon; yet the embarraſſments were not numerous, and the ſick ſoldier never ſuffered. The Britiſh ſick, at Port-au-Prince, were brought under the ſame management. Change of cantonment, detachment, ſome ſmall excurſions of ſervice happened during this period; there was no material embarraſſment, and ſick ſoldiers, never, perhaps in any ſituation, enjoyed greater comfort, than in regimental hoſpitals at this place. The ſcheme thus appears to be practicable;—it muſt, in the next place, be ſhown to be beneficial.

When ſuch an eſtabliſhment is formed, for the ſick of a regiment, as ſecures every advantage of accommodation which ſick men require; and which leaves no cauſe or opportunity of removal to general hoſpitals, the ſurgeon finds himſelf engaged to act decidedly in the commencement, in the proſpect of cutting ſhort his future toil. The remark is not gracious, but it is too often verified, that men act remiſsly, when there exiſts a remedy to cover their neglects. Such a remedy are general hoſpitals to the negligencies of regimental ſurgeons. In this manner, it has been too common not to receive fevers at general hoſpitals till confirmed, advanced in progreſs, ſometimes till near the period of fatal termination: the mortality then appears great, and the management of the hoſpital is blamed, where there is no juſt cauſe of blame. The advantage of early attention, in its effect upon diſeaſe, is evident in every country; and it is particularly conſpicuous in tropical climates; the utility of ſuch arrangement, as enſures this attention on the part of the ſurgeon, is obvious, and does not require a formal demonſtration; while the other benefits, connected with the plan of treating the ſick of an army regimentally, are not of ſmall importance. In regimental hoſpitals, a ſick man is treated attentively by a comrade, often from the habit of previous friendſhip, but always to a certain extent, from fear of neglect being repreſented to men who have the means of ready puniſhment. In general hoſpitals, the attendants,

too often compoſed of ſubjects profligate and drunken, have little connexion of friendſhip or previous acquaintance with the ſick man, and no adequate fear of puniſhment for offences of neglect. The patient ſuffers, the medical officer is diſtreſſed; but has not the means of rectifying what is wrong. This is a fault, not inherent in the conſtitution of general hoſpitals, but it ariſes in the management, and is ſeen daily in experience: hence, attention to ſick will be uniformly better ſecured, in regimental than in general hoſpitals; diſeaſe is alſo cured more ſpeedily, and military habits are better preſerved. In regimental hoſpitals well conducted, acute diſeaſes rarely exceed a fortnight in duration; from general hoſpitals, few are found to return to their reſpective corps, in leſs than three months. In regimental hoſpitals, among companions in arms, the military ſpirit is not ſuffered to languiſh, while a diſpoſition to ſkulk or malinger, ſhould it exiſt, will not long remain undiſcovered, or be permitted to impoſe on the ſurgeon. In general hoſpitals, ſloth ſoon lays hold of a ſick perſon, and deſtroys his energies, In three or four months, though bodily health may be reſtored, the mind often becomes torpid; ſo that a man, from an hoſpital, is often leſs of a ſoldier, than when he was firſt recruited.

If the health and lives of ſoldiers and expenditure of public money, be thrown into oppoſite ſcales, no mind will heſitate for a moment, on which ſide the balance ought to preponderate; but it will alſo be

allowed to be a matter of ſome conſequence, to ſecure every advantage on the one part with the leaſt poſſible encroachment on the other. This is obtained by the eſtabliſhment of regimental hoſpitals. The expence is here ſmall and limited; it is in fact confined to a ſupply of medicines, at ſtated periods of the year, with a requiſite proviſion of hoſpital furniture. The expence of general hoſpitals, formed, as has been too often the caſe, without fixed principles of order and economy, knows no bounds. Profuſion is perhaps a mark of neglected duty in all departments;—it is conſpicuouſly, and even dangeroufly, ſo in the medical An undue allowance of beef, bread and wine, for hoſpitals, is not ſimply ſo much waſted; it is applied to a pernicious purpoſe,—to deſtroy the health of the patient, often to intoxicate the attendant. This can leſs happen in regimental hoſpitals, becauſe the means are limited, though perfectly ſufficient for real wants. The pay of a ſoldier while at home, the ration on foreign ſervice, with a ſmall addition, or weekly ſtoppage from the ſubſiſtence, will be found equal to furniſh every comfort, in the way of diet or nouriſhment, which a ſick man can require. This is no ſuppoſition: It is a fact proved repeatedly by the author in the course of his official service.

In furniſhing the ſupply of medicines for an army, or for a detachment of an army, it will be proper that a rule be obſerved by which every thing neceſſary be provided, without loading the medicine cheſt with the encumbrance of articles of little uſe.

This can only be effected by a board of the ſurgeons of the different corps upon ſervice forming a joint requiſition of things judged ſuitable, ſubject to the correction of the immediate head of the department, who is ſuppoſed to be intimately acquainted with all the conditions of the duty, and who muſt hold himſelf reſponſible that no wants exiſt, and that no ſuperfluous demands be granted. While the medicines for an army are ordered by perſons who have no knowledge of military ſervice, who have no knowledge of the diſeaſes of the country in which the troops ſerve, or who have no knowledge of the principles upon which the ſurgeons of the army act, much will be ordered that is unneceſſary, while many things will be wanting, or furniſhed in ſmall quantity, which require to be ſupplied liberally. The ſame will be the rule with hoſpital furniture:—uſeleſs furniture often rots in ſtore, while things necessary are not to be found for the exigent ſervice of the day,—inconveniences which could not have place, if the ſupplies were uniformly ordered by the perſon charged with the acting reſponſibility of the department.

APPENDIX.

APPENDIX.

Refutation of Dr Currie's Strictures on the Outline, in as far as relates to the application of Cold Water to the Surface.

Dr Currie observes, at page 195 of the second volume of the 4th edition of the Medical Reports, that "*in* 1798, *a year after the first edition of this publi-* "*cation*, (viz. Medical Reports,) *Dr Jackson gave* "*to the world his Outline of the History and Cure of* "*Fevers. In the interval between this and his for-* "*mer work*, (viz. Treatise on the Fevers of Jamai-" ca,) *his experience of the remedy in question had* "*extended, and his stile and mode of reasoning had* "*undergone a remarkable alteration. I do not pro-* "*fess always to understand the full import of the new* "*phraseology of Dr Jackson, which is in a consider-* "*able degree founded on opinions peculiar to himself;*

" *nor do I, after a diligent comparison of his precept* " *with his practice, perceive clearly the principles* " *which regulated him in the use of this powerful* " *remedy. I can, however, clearly see, that there is* " *little or nothing in common between us in this re-* " *spect.*" It is not necessary to detain the reader with any length of reply to the several points of objection stated in this paragraph. 1*st*, I admit that my stile and manner of writing underwent some change in the interval between 1794 and 1798; but, while I admit this, I believe at the same time, that those who take the trouble to examine the works alluded to with attention, will not fail to perceive, that the base of the principle and practice is the same in both, though more fully developed and prosecuted farther in the latter than in the former publication. 2*dly*, I do not pretend to say that Dr Currie may not have had difficulty in perceiving the principle which *regulates* me in the application of cold water to the surface; but I still think, that, if my practice be carefully considered it will always be found to be directed by a principle, and even by a consistent one. None of the journalists who reviewed the outline, discovered, as far as I recollect, that my practice was at variance with my principle: It was even observed by some, that the view therein given *was bold, but consistent* *. 3*dly*, Dr Currie, like other authors, considers his own views and opinions

* British Critic, 1799.

to be right; mine, as differing from his, he necessarily concludes to be wrong. He has stated explicitly on this occasion, that his views and mine have *little or nothing in common.* He must consequently be supposed to hold the presence of increased heat to be the condition which regulates the application of cold water to the surface, the subtraction of heat, the effect which commands the cure of the disease. Impression on sensation, to which he so frequently alludes in the course of his work, has great analogy with the opinion which I hold, and have uniformly maintained; and, as he professes to have nothing in common with me in opinion, I am of course induced to consider this allusion to impression on sensation, which necessarily brings in its consequences some change in the form of action independently of temperature, as an interpolation in the text. He must either adhere to his principle, viz. increased heat and its subtraction; or, abandoning it, he must subscribe to susceptibility of impression, and action of a new form, in consequence of impression solely: he cannot be indulged with both, for such latitude is not comprised in the law of nature.

I have stated, in a cursory manner, the leading condition which guides the author of the Medical Reports and myself in the affusion of cold water on the surface of the febrile subject: I shall next proceed to notice his more specific objections to the mode of practice which I adopted in my Outline. He judges it by the rule which he has himself formed. I do

not subscribe to the truth of the position or principle according to which he decides; but I satisfy myself for the present, to be judged by the application which may be made of his own experience, or of the authorities which he adduces in the reports, and which, as such, he admits to be authentic and true. In the *first* place, he observes, that "*instead of em-*" *ploying the cold bathing in th first stages, when the* " *strength is nearly entire, and the febrile heat at the* " *height, Dr Jackson premises copious bleedings and* " *other evacuants, by which both must have been* " *previously reduced.*" I have some difficulty in fixing the meaning of this paragraph. It is ambiguously expressed, insinuating, though not stating expressly, that I do not employ cold affusion in the early stages of fever; or, that I employ it only after copious bleedings and other forms of evacuation. In the way in which the sentence is put, I understand the meaning to apply to the general rule of my practice; but I cannot perceive through what deduction the inference has been obtained; for the general rule of the Outline or the detail of cases therein mentioned do not seem to warrant it. But, as I am sensible that I have not been sufficiently explicit on many points in that publication, I shall now mention in a few words the sum of my customary proceedings. In the *first* place, then, the affusion of cold water was made in the early stage of fever, generally before the patient was conveyed to his ward, or accommodated in his bed. This is known to many persons who acted with me when I held a public station in the service

of the country. This was my customary practice, and the fact may be proved by many still living. But, while I say this, I am also to observe that, if the fit condition be present at an advanced period of the disease, I do not withhold the remedy because the disease is advanced; I however apply it with diminished expectation of decisive success. I mentioned just now, that the basis of my expectations of success consists in susceptibility of impression in the subject of the experiment. If that exist in the case when first presented, I apply the remedy without loss of time; if it do not appear to exist, I endeavour to produce it artificially. This then being my ground, I have to observe further, that I rarely bleed where the symptoms are moderate, and where the disease is of a mild character; for instance in the simple continued, or in simple remitting fever, whether in a temperate or a tropical climate; or, in the infectious fever of ordinary violence, such, for example, as usually occurs among soldiers quartered in crowded barracks, in crowded and ill ventilated private apartments, in transport ships, or other places where the air is stagnated and impure from the undue accumulation of inhabitants. The condition favourable for the salutary action of the remedy is then usually present, and it is then obvious that previous preparation is superfluous; or, if preparation be then attempted by means of copious evacuation, it is not certain that it may not be dangerous or hurtful. On the other hand, where the heat is deficient, the skin dirty, damp, greasy, and flaccid, or withered and tor-

pid, the preparation is effected by introducing the patient into the air of a warm apartment, by immersing him in a warm bath, by cleansing the skin perfectly by means of soap and warm water, by scrubbing it with brushes, and rubbing it with hot towels; and again, when an undue share of morbid action manifests itself in the first passages, accompanied with a slimy, foul tongue, nausea, and flatulence,—a condition not uncommon where the patient has been confined in the foul air of a crowded barrack, the 'tween decks of a transport ship, or the crowded ward of an infected hospital,—an emetic is usually directed to precede the cold affusion as preparative; whilst purgatives, which operate strongly and extensively, are ordinarily premised where there are marks of congestion and fulness in the abdominal system. And, *lastly*, where the disease is of a violent character and concentrated force, wherever that may be, but more especially in tropical climates,—for instance, where the movement is rapid, the action strong, the course precipitously tending to the destruction of an organ; or, where the movement is impeded, the action in a manner suspended, the surface of the body constricted, or internal organs suffocated by a stagnating mass of blood, the preparation is made principally by means of bleeding, the blood being allowed to flow till the violent action abate, or till the sluggish course be animated; for in either case the system regains its susceptibility, and the affusion of cold water on the surface then produces its most fortunate effect. That this principle

has long been in my view, may, I think, be collected from my publications of 1791 and 1798. In the first, I recommend bleeding as preparatory only in some cases; I even forbid it in others: in the second, I do not enjoin bleeding in the common infectious fever, and do not admit of it unless where the disease is complicated with local inflammation. In proof of this, I observe that, of some hundred cases in the buff which were submitted to the affusion or aspersion of cold water in 1794, not ten were prepared by bleeding: on the contrary, there was not one in ten, in which bleeding was omitted among those fevers in St Domingo which were presented to me at an early period of their course. This is the fact; and to this cause I ascribe the success of the effect; for it was generally observed to bear proportion to the care and judgment with which the bleeding was conducted and the extent to which it was carried. From what I have now said, and which I must consider as in some degree proved by the details to be found in my different publications on fevers, it is pretty evident that I do not indiscriminately employ evacuation, particularly bleeding, as preparatory of the affusion of cold water. I consult my judgment in the case; and, though I do not maintain that I never err, and never employ it where I might omit it, I may add, at the same time, that the Medical Reports themselves furnish proof, that occasions do exist when it may be employed, not only without injury, but apparently with great benefit. Dr Currie informs us, at page 117 of the second vo-

lume of the Reports, that Mr Wilson, surgeon of his majesty's ship Hussar, pursued a mode of practice which, as far as I can discover, is very similar to that which I recommend in the more violent forms of tropical fever. The success of Mr Wilson's practice was highly distinguished. Dr Currie refers to the Medicina Nautica of Dr Trotter as his authority. I subjoin the paragraph, as extracted from the Medical Reports: "*Mr Wilson's practice was to bleed very* "*early, generally in an hour after the accession of the* "*hot stage. He then gave a solution of emetic tartar.* "*The cold affusion was always administered in cases* "*of delirium, which it immediately removed, inducing* "*tranquillity and sleep; of eighty-three cases, Mr* "*Wilson did not lose one.*" This event took place in summer in 1795, at Halifax in *Nova Scotia*. The sick were disposed in tents on shore, and were there attended by Mr Wilson himself. The success was perfect; and whatever the nature of the disease may have been, the fact of the success proves incontestibly that bleeding is not a destructive practice in fever; on the contrary, it gives ground to believe that it is often a beneficial one, preparatory to the affusion of cold water on the surface. This record, then, of Mr Wilson's practice, I am disposed to consider as evidence of the safety and advantage of the mode of preparation which I institute, previously to cold affusion in diseases of a violent or complicated character; and I am inclined to think that my mode of proceeding in this case will strike the reader with force, as the similar proceeding of Mr Wilson,

which was so successful, is admitted to be authentic by the author of the Medical Reports.

I have thus noticed, and I hope completely removed, the first specific stricture made by the author of the Medical Reports, on my method of preparing the subject previously to the affusion of cold water on the surface. I now proceed to submit the second to the consideration of the reader, and I trust I shall do it away equally to his satisfaction.—"*Instead of considering the heat of the patient as* "*the principal circumstance to be regarded in re-*"*gulating the use of this remedy, he (Dr Jackson)* "*appears to have neglected all consideration of tem-*"*perature in applying it, except in so far as tempe-*"*rature is connected with sensation; and he has not* "*given us a single thermometrical observation in the* "*whole details of his practice, either in regard to* "*the water employed, the previous heat of the pa-*"*tient, or the change produced by the affusion.*"—There still appears to be some ambiguity in this paragraph, as well as in that last noticed. If it mean simply that I used no other means of judging of the heat of the patient, except the sensation communicated to my own hand in examining the state of the body, the fact is true; and I believe the reader will not consider the omission to be of great importance, when he learns that Mr Nagle, of his Majesty's ship Ganges, and Dr Gomez of the Portugueze fleet, two of the most brilliant authorities referred to in the Medical Reports, attained a sufficient precision for the application of cold affusion without the help of a thermo-

meter, as well as myself: On the contrary, if it mean that I neglect the consideration of heat as a matter of no importance, I find myself obliged to give a statement and further explanation of the fact; for, if such be the supposition, it is not altogether correct. In the *first* place then, I declare explicitly that I do not regard the mere increased heat, or high temperature of the patient as the principal, the sole, or indispensible circumstance which solicits a trial of the cold affusion, which warrants its safety and insures its success; yet I admit, and all my publications abound with proofs, that I consider the equal distribution and superficial diffusion of heat as materially connected with that condition of subject, which is ordinarily favourable to the successful action of this remedy. That this is my opinion may be inferred from a consideration of the nature of the means, which I adopt in preparing the subject of my experiment where the superficial heat is deficient, or where it is unequally distributed. For instance, I introduce him, when cold and torpid, into an apartment where the air is of a high temperature: I pour warm water upon his surface or immerse him in a warm bath: I scrub his skin with brushes armed with soap; and, having thus rendered the whole body perfectly clean, and increased its susceptibility in consequence of the operations connected with purification and warmth; I affuse the cold water with expectations of increased effect from the circumstances of the condition thus artificially produced. The sphere of the remedy is

by this means extended: its action is rendered sure, its effect certain and complete. When the reasons are explained, which will be done fully in another place, the practice, it is presumed, will be regarded as an improvement of no inferior importance in the management of this remedy. But though it must appear, from what I have now said, that I do not overlook all consideration of temperature in applying cold water to the surface, I must again repeat that I do not consider increased temperature as principal, sole, indispensible, and sure; for my own experience, and even the experience of the author of the Medical Reports * sufficiently testifies that an increased degree of heat sometimes manifests itself in a febrile subject, without comprehending that precise condition of body which is essential to the successful action of the remedy. My own observation supplies numerous instances; and authority, adduced and admitted to be authentic, by the author of the Medical Reports, confirms the fact, that the application of cold water to the surface may, and actually does, produce good effect where no increase of heat is discoverable by the hand of a person in health; nay, even where sensation of great cold is manifest. This sense of cold arises from a modification in the action of the febrile cause which we cannot pretend to explain. It is more

* Medical Reports, Vol. I. Chap. 8.

common in malignant epidemics than in other forms; and it seems to have been a leading symptom in the fever which prevailed at Breslau in the year 1737; of which De Hahn gives some account, and from which the Medical Reports furnish me with some extracts which relate directly to the point in question. Cold water was applied in this case by means of sponges. This was done when the surface was withered and flaccid, or covered with an ice-cold sweat: the effect was salutary, viz. animation and fulness of the surface, or dissipation of the icy-coldness under racking pains. De Hahn's own case may be supposed to have been the most minutely attended to; I shall therefore transcribe part of it, as descriptive of his situation, and of the effects produced. It is as follows: " *Those continued ablutions, by which I* " *had been refreshed hitherto, were not neglected on* " *that very day on which I was thought to be dying;* " *for although I was cold all over, bathed in cold* " *sweat in such a manner as if I had been laid in* " *melted ice, the ablutions were notwithstanding per-* " *formed upon me, my most dear spouse executing the* " *office of washing off this death-like moisture. And* " *I solemnly aver that I never failed to experience* " *refreshment, at least for a short time. When the* " *pores of the skin were cleared by the means stated,* " *a free perspiration or moderate sweat was the* " *consequence; in so much that the constrictions of* " *the surface seemed to be more readily and effectu-* " *ally relieved by abstersion with the sponge, than*

" *by the power of any internal remedy* *." Med. Rep. vol. i. p. 82. The account here given of the effect, according to Dr Currie's observation, *corresponds with the experience at present.* If this be so, the presence of increased heat is not the primary and absolute condition which sanctions the safety of the cold affusion and ensures its success; for here, there was icy coldness on the skin, and yet sponging the body with cold water did good. I agree indeed with the author of the Medical Reports that a cold surface does not present the most favourable condition for the application of cold water, and I accordingly institute a process of preparation to obviate that condition; but I maintain, and I believe the reader will assent to my opinion, that if cold water can be applied to an ice-cold surface, not merely without injury, but with benefit, this author's principle is overturned, and the stricture on my practice in the paragraph under consideration is consequently done away.

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* Juges illæ ablutiones hucusque recreatus fueram, eo ipso die qua mori videbar, non negligebantur; licet enim totus algidus algido sudore perfunderer, non secus ac liquifacta glacie immersus, frigida tamen abluebar, maritum servitura charissima conjuge lethales madores, ocius deluente. Saneteque testor, nunquam non refici ad breve temporis momentum languentes marcidæ cutis fibras me persensisse. Succedebat, repurgatis hac ope poris, perspiratio liberior, ac sudor modestus: videbanturque cutis obturacula promptius spongia remota, quam pharmaci interni virtute, reserari.

In answer to the other part of the paragraph, viz. "*that no thermometrical observation concerning the* "*heat of the patient, is recorded in my work publish-* "*ed in* 1798, *and no notice made therein respecting* "*the temperature of the water employed for affusion,*" a very short remark will be sufficient. The Medical Reports themselves furnish sufficient proof that every requisite practical precision may be attained without measuring the heat of the body by an instrument. This is a point which cannot be denied; and to this I add, that the reader cannot be at a loss to collect, from the circumstances connected with my history of fevers, in what climate, or in what season, this remedy is employed. When he has attained this point of information, his conclusion respecting the common temperature of water is not likely to be very erroneous. I may however now remark, and the substance of it may be collected from one or other of my publications, though not so fully and explicitly expressed perhaps as it ought to be, that the water was directed to be as cool as it could be obtained in tropical climates; that is, drawn from the deep sea, the spring or reservoir, early in the morning, placed in the shade during the day, and sometimes cooled artificially by dissolving salt in it. In higher latitudes, viz. in Europe, it was employed at the common temperature of the place and season; only with this difference, that in summer it was affused suddenly, and in large quantity, by means of buckets; in winter, more gradually,

and in small quantity, often by sponges or gentler aspersions.

The next paragraph, viz "*That the previous or "subsequent dryness or moisture of the skin forms no "part of his observation; and even the very remark-"able, and almost uniform effect of this remedy on the "pulse, is entirely unnoticed,*" is perhaps not very correctly stated. The points alluded to, though not indifferent among the things to be considered by the physician, though in fact not overlooked by me when I form a plan of cure, and not ordinarily omitted when I detail a case for the information of the public, are not, I confess, points of the first importance in my estimation. The cold water, for instance, is applied with a fortunate result, provided other circumstances are favourable, sometimes where the skin is dry and withered, sometimes where it is greasy and damp; and further, sometimes where the pulse is strong, frequent, and hard; sometimes where it is weak, little accelerated in movement, lax and compressible in manner. It is probable that, from a knowledge of this fact, I may seem to have less regarded the condition of the skin and the state of the pulse in applying cold water to the surface, than the author of the Medical Reports does himself, or thinks necessary to be done by others; but when I admit this, I must at the same time remark, that where I employ affusion, without preparing the previous condition of susceptibility, I generally employ it at the period of exacerbation, consequently when the skin, according to the ordinary course of things, is dry as well as hot. But, while what I

now state with regard to the condition of the skin, is usually in my view when I employ the remedy in question. I must also add that my principle does not positively forbid aspersion, ablution by the sponge, even affusion by means of buckets, where the superficial heat is lower than that of ordinary health, and where the skin is withered or greasy, damp and clammy even where it is moist and open, such as in common language is termed relaxed,—not such, it must be remembered, as obtains in critical perspiration terminating the paroxysm of a periodic fever, or making the solution of one of continued form:—it would there be preposterous, and unnecessary, if not dangerous. The case of De Hahn, mentioned above, may serve to give an illustration of what I mean; and I refer to it for explanation as it stands on record in the Medical Reports. Ablution by means of the sponge was there employed when the surface was covered with an ice-cold sweat; the action of the skin was apparently restored by it to a form more healthy and energetic; and as the experiment was made on the person of De Hahn himself, we must allow *his* testimony to be good evidence of the fact. The effect of the affusion, as I observed above, is beneficial when applied under very different conditions of pulse; but I now add, that the remedy was managed differently, according as the pulse was high or low, strong or weak. Where it was high, strong and irritated, the affusion was made by means of buckets, the water applied in quantity; where it was smooth, soft, and easily compressed,

for instance in cases of great mobility and diminished power, the water was applied by sponges in ablution, and sometimes by aspersion.

The points which I have now noticed, are the more specific strictures applied by the author of the Medical Reports to my Outline of 1798. The facts recorded in the Reports, which Dr Currie admits to be authentic, and to which I have referred, seem to me, not only to do away these very strictures, but to undermine the basis of the principle through which they were formed.

The next paragraph in the Reports which relates to my Outline is the following, and it requires only a short explanation on my part. "*Nor have I the "satisfaction of agreeing with Dr Jackson on the "manner in which the sensibility of the patient ought "to influence us in the use of the cold affusion. He "requires a state of high excitement or sensibility of "the surface in the application of the remedy, and "considers its benefits are wholly dependent on this "previous condition; whereas an extreme sensibility "to the impression of cold, (which according to my "experience often attends great sensibility of surface "in fevers) deterred me from employing it, when the "actual heat of the patient indicated its use.*" It is probable that I have not expressed myself clearly on this head, for it is evident that Dr Currie has not apprehended my meaning rightly. The condition which I require for the application of the cold water, and which I endeavour to create if it do not already exist, consists in susceptibility of impression

combined with the capacity of producing effective action. It is attained in one case by superficial stimulations, particularly by processes similar to those practised in the Russian bath; in another by subtractions, particularly by copious bleeding, the evacuation made suddenly, but conducted with caution and minute attention through all the steps of its progress. The susceptible condition, according to my interpretation of the word, is different from that extreme sensibility to the impression of cold to which this author alludes, at page 49th of the first volume of the Reports. I confess that I have not often, if ever, seen a disease exactly resembling that which is there described; but I have often seen fevers, particularly infectious fevers, where the skin was so tender of the touch that the patient shrunk when I approached him for the purpose of feeling his pulse, and probably called out when I pressed his arm closely with the view of ascertaining the condition and quantity of heat in the deep seated parts. This condition occurred frequently on the continent, in the winters of 1794 and 1795, among the soldiers of the buff or 3d regiment of foot. The skin was here painful and tender, as if it had been bruised; yet affusion, or ablution with cold water, was of singular value in this, as well as the other forms of fever which appeared in that corps. I do not presume to speak positively on a subject of which I have had no direct experience; but I am inclined to think that if the existing condition of the skin, in cases similar to that noticed by Dr Currie, were ar-

tificially changed by immersion in a warm bath of high temperature, and by frictions with warm and penetrating oils, the affusion of cold water, particularly with the addition of salt, might be expected to be of high service, if not decisive of abrupt cure.

Dr Currie concludes his examination of my work of 1798, with this remark: "*It would not become "me (Dr Currie,) to pronounce judgment on the very "important differences between Dr Jackson and my-"self; this must be left to future observers. But, "from the experience which I have detailed, I can-"not be surprised at the imperfect success of the re-"medy in his hands, or that other practitioners in "the West Indies, who had adopted it on the same or "similar principles, should have afterwards aban-"doned it.*" I willingly submit the case between the author of the Medical Reports and myself to be decided by the experience of such future practitioners as shall observe with attention, and judge without prepossession. I have no farther interest in the decision than that the public may see the truth, and adopt the rule of practice which is most useful and effective of good. I may, however, observe in this place, that my opinions have been judged, and my practice condemned, without full evidence of trial. Dr Currie has drawn his inferences from what he saw himself; and his sphere of observation was comparatively a narrow one. Had his situation presented him with examples of fever in its more concentrated and difficult forms, he would, I believe, have expressed himself less confidently than he has don

concerning the power of the cold affusion employed in the manner which he recommends; and I also believe, that had he been where I have been, and seen diseases under all the forms in which I have seen them, he would have withheld those strictures on my publication of 1798, which I have now examined, and, as it appears to myself, completely set aside by induction from his own authorities. When I speak in this manner of Dr Currie's opinions, I do not mean to insinuate that his testimonies in favour of cold affusion are exaggerated or misrepresented; for I am well assured, from my own experience, that the affusion of cold water is capable of cutting short the course of a mild or simple fever, without preparation of condition, when applied as he directs it to be applied, whether in Europe or in the West Indies; but while I admit this, I am also convinced, from no less certain evidence, that it is liable to fail in the more violent and concentrated, unless the proper condition of fitness in the subject be prepared artificially previously to its application;—it is then only that the affusion can be regarded as sovereign. To prepare this condition, where it does not already exist, forms the basis of my practical rule; the just execution of it is considered as the circumstance which gives full effect to the after-process. That this was my opinion in the year 1798, may, I believe, be concluded from what is stated in my Outline, at page 226 *. The language of that paragraph is not

* Vide, page 226.

equivocal; it does not imply that the application of the remedy was indiscriminate, and it does not acknowledge an imperfect success from its application, where the condition of the subject was fit and proper, whether belonging to the disease in its own form, or obtained by preparation through art.

The insinuation, that the "*success of cold affusion* "*was imperfect in my hands*," is a point in the above paragraph, which, however irksome the notice of it may be, I cannot pass in silence. I confess I am not able to trace the channel through which the author of the Medical Reports attained his conclusion respecting it; for it does not appear, by my own confession, in any of the works which I have published on the subject of fever; and, if judged to be a necessary consequence of the rule of practice which I recommend, Dr Currie's own experience, or that of his correspondents, will not, I believe, furnish such evidence as will be thought sufficient to bear him out in his assertion. He seems to consider it as an error that I premise bleeding, or other evacuation, previously to the application of cold water to the surface. My publications on fever shew plainly that I do not employ bleeding indiscriminately; and the practice of Mr Wilson, quoted above, and admitted to be authentic by Dr Currie himself, shews clearly that it may be employed in some forms of febrile disease, not only without injury, but apparently with benefit. It is objected, that I do not consider the heat of the patient's body as the principal circumstance to be regarded in regu-

lating the use of the cold affusion. I am ready to admit that I consider heat only as a secondary circumstance, though by no means an indifferent one, in directing my judgment in this respect; and I further add, that I am not deterred from applying the remedy when the temperature is low, provided other circumstances be favourable for its safe and successful action. The instance of De Hahn stands in proof, that ablution with cold water may be salutary, even where the surface of the body is preternaturally cold. 3*dly*, It is insinuated that the practice cannot be precise without the thermometrical observation. I am of a different way of thinking, and I refer to Mr Nagle and Dr Gomez, two of Dr Currie's most respected authorities, in proof of my opinion. From what I have now mentioned, the reader, I presume, will have no difficulty in admitting that the strictures, pronounced against my rule of practice by the author of the Medical Reports, are not supported by the experience detailed in these reports; and therefore that he has not considerately referred to it. I have only to add, that, if I had not believed in the success of what I did, over the success of common practice, I could not have had the assurance to lay it before the public with commendation; but that the reader may form his own opinion on this subject from official facts, I shall state the proportion between deaths and recoveries in fever among persons who were committed to my care in the different countries where I have served or exercised my profession. In the *first*

place, the mortality in the fever of Jamaica, between the month of March 1774, and the beginning of January 1778, in a company of soldiers of the 1st battalion of the 60th regiment, quartered at Savanna la Mar where I resided, did not exceed one in fifteen. I do not possess detailed returns of what I now state; indeed, regular returns of hospital casuality were not then made by me; but I have been able to collect, from notes or memorandums that are still among my papers, that one in fifteen was nearly the proportion. This, I confess, is a low mortality from fever in a tropical climate; but I must observe, in accounting for it, that the disease was ordinarily mild in its nature, and that the persons alluded to were seen in the first hours of indisposition; so that a favourable opportunity was thereby given of effecting an abrupt cure. That this was the principal cause of the favourable return, may be concluded from what happened to sailors, or such of the civil inhabitants as came under my care during my residence at this place. The mortality among such was not less than one in five; for the disease was often completely formed before it was presented to me; and, when that was the case, it often proceeded in its course to a regular critical termination in spite of all my efforts to arrest its progress. A loss of one in three was considered as a favourable return from the military hospitals of St Domingo in the years 1796 and 1797. In a time of general sickness and great mortaily, I assumed the office of regimental surgeon for the 56th regiment, which

was stationed at the Mole, Cape St Nicholas, in the year 1796. I continued in the exercise of that office for the space of six weeks; and, during that time, the proportion of deaths, among fair cases of fever, that is, such as were presented to me within six hours from the attack, did not exceed one in twenty. This is official; and I can venture to say, though no official return was made of the fact, that the result was equally favourable among those individuals who were submitted to my care at the commencement of the disease, in subsequent periods, during my continuance in that island. The proportion of deaths among febrile patients in the Buffs was still smaller than what is now stated. During a period of eighteen months at the commencement of the late war, two hundred and fifty febrile patients were dismissed as cured from the lists of sick of that corps, exclusively of those who were sent to general hospitals in various stages of convalescence, where the means of accommodation were deficient, or where waggons were not allowed for transport in the event of the army changing its ground or position; of these, only two died; consequently, the mortality did not exceed one in one hundred and twenty-five. This is certainly low; but it is to be taken into the account that I was surgeon of the regiment; as such, I saw the disease at its commencement; nay, I even in a manner domesticated with the sick, administered the medicines with my own hand, and superintended every important act of discipline, which concerned those

who were seriously ill. Farther, I acted as physician and head of the hospital at the army depot for the whole of the year 1801. The mortality among febrile patients, while the depot remained at Chatham, stands as one in thirty-two; at the Isle of Wight, where an epidemic of great malignity prevailed, where none but dangerous cases were admitted into the hospital list, and where the miseries of the hospital and barracks opposed great obstacles to the recovery of health, it stands as one in twenty-three *. This is official, and the proportion of deaths is not high comparatively; for we find that mortality in the house of recovery at Liverpool during a space of four years, according to Dr Currie's own report, amounted to one in ten and a half †. Such is the comparative statement of mortality from fever. I leave the reader to form his own opinion of the fact and its inferences.

In reply to the concluding sentence of the paragraph transcribed above, viz. "That *others who had* "*adopted the practice on the same or similar princi-* "*ples (with me), had afterwards abandoned it*," I have little to remark. I do not myself know any one who employed cold bathing according to my principle, and who afterwards abandoned it. Dr Currie instances his friend Dr Ord of Demarara; but the reference is not a fortunate one, for Dr Ord says expressly that he had misapprehended Dr Currie's meaning, "*not conceiving the principle on which*

* Constitution of the Medical Department of the British Army, by the Author.

† Medical Reports, Vol. I. p. 367.

" *Dr Currie used it, was to procure the solution of* " *a febrile paroxysm, but to assist with other tonics* " *in restoring strength to the constitution after the* " *febrile catenation had been removed*" If this be Dr Ord's view in applying cold water to the surface, I may safely venture to say that he did not derive it from me. The reader is fully aware from what has been said repeatedly in the preceding pages of this work, that I employ the affusion of cold water while the disease is in the vigour of its course, not when it has remitted or ceased: but it would be superfluous to prosecute the subject farther, for it is of no real importance to any one to know whence Dr Ord derived his rule of practice.

Such are Dr Currie's strictures on my Outline of the History and Cure of Fever. The work, as I observed before, was written in a foreign country; consequently it was written under disadvantages. I hold the facts to be faithful: I am sensible that the manner in which they are presented is not the most alluring; and I should not be chagrined if the Outline were not praised; I am called upon to vindicate it from the imputation of leading others into error. This I trust I have now done; and I am particularly obliged to the author of the Medical Reports for supplying me with authorities from his own stores, which have assisted me so materially in establishing my positions. It is more than I could have expected; and, from the manner in which it is attained, it cannot fail to make impression on the mind of the reader.

FINIS.

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